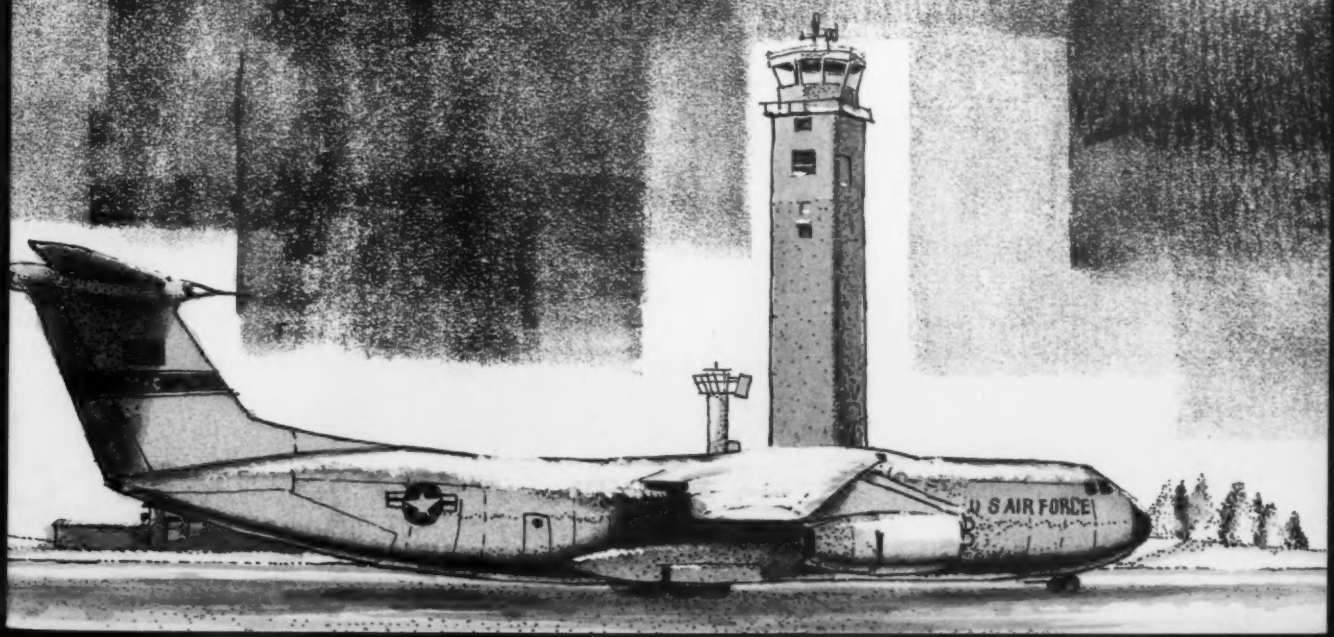
The MAC Flyer

FEBRUARY 1973



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For Greater Efficiency
in MAC Air Operations

The MAC Flyer

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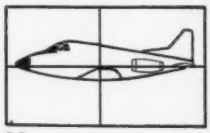
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Cover: We're only halfway to spring — there's a lot of cold weather still to operate in.

The MAC Flyer is published by the Safety Division, HQ MAC. The contents are informative and not regulatory or directive. All names in accident stories are fictitious and no information concerning aircraft accidents may be construed as incriminating under Article 31, UCMJ.
Contributions, comments, and criticisms are welcome. Write: The Editor, The MAC Flyer, MAC/IGYE, Scott AFB, IL 62225, or call: (618) 256-3534, Autovon 638-3534. The Editor reserves the right to change manuscripts to improve them or correct technical errors.
The magazine is available from: The Superintendent of Documents, Government Printing Office, Washington, DC 20402. Price: 20 cents per copy, $2.00 per year ($2.50 foreign).
Distribution F, X; OPR MAC/IGYE.

Squawk Box

Letters to the Editor are arriving on an ever-increasing rate, and we welcome them. Your letters are one of our few windows on the real world, a place we find increasingly hard to visit due to fund shortages.

In addition to your likes and dislikes, what you say between the lines is also important. One writer recently hinted strongly that THE MAC FLYER is uninteresting, redundant, ineffective, official, and notoriously lacking in material concerning his unit's aircraft.

Interestingly, the writer also offered some between-the-lines solutions. First, he cited other military safety magazines which his contemporaries like better. We feel augmenting the program like this is fine — and his unit should try to provide ample copies of these other mags for the troops, whether they prefer Navy *Approach*, *Army Aviation Digest*, *Interceptor*, *TAC Attack*, *Airscoop*, *PACAF Professional*, or Canadian Forces *Flight Comment*. Likewise, we are glad to serve other agencies which feel they need THE MAC FLYER.

Second, the change the writer would like most to see is more short, hard-hitting, first-person items about his type of aircraft. That takes authors and contributors, and we're proud to report that we have over 10,000 of these folks in MAC. Unfortunately, most of them are hidden.

Can we improve this writer's outlook? Hopefully, by making a few changes. Can we write the things he'd like to see? Nope. Can we find authors? Yes — if *you* quickly fill in your suggestions on one of the "Speak Up" forms on page 17, then fire it (or a letter or a volunteer manuscript) to *your* fly safe book editors.

INCORRECT ISSUE NUMBER SHOULD
READ ISSUE 2.

Asked to do many of the same tasks but with fewer people, the AWS troops came up with a new concept:

RBS—Plan B for Weather Forecast Service

by Maj Bob Gardner and Capt Phil Budd

HAVE YOU NOTICED any changes in the services provided by your local base weather station lately? Have you called pilot to forecaster and found that there was only an observer on duty? On your last flight, did you have to study the weather charts without the aid of a forecaster and then receive your 175-1 briefing over the telephone?

You probably have experienced one of these situations in the last few months and should expect more because of a major Defense-directed cutback in Air Weather Service people and services. Service to aircrews was directly affected by this people cut, since about a thousand were base weather station forecasters and observers. Because of the people losses, many weather detachments no longer operate full time. Though they probably have observers round the clock, forecasters are on duty only 16 to 18 hours each day.

The Concept

To cope with this drawdown and still provide adequate support to flight crews, the troops at HQ AWS came up with three possible alternatives. First, they could do away with all formal briefings during the hours when no forecaster was on duty. It would be up to the pilot to brief himself from weather depiction charts — if the weather looked good, he would just press on. If he felt he needed additional help, he could call a forecaster at the closest base having 24-hour service. This put sole responsibility on the pilot for obtaining weather information.

The second alternative was for AWS to establish a central briefing facility at Air Force Global Weather Central (AFGWC) at Offutt AFB. This single facility would handle all 175-1 briefings for all CONUS base weather stations during the hours these stations were closed. A standard briefing display of weather charts would be maintained at the base shop by an observer, duplicating the display at AFGWC. The briefing could then be conducted over the telephone while both pilot and forecaster looked at the same charts. The briefing charts selected (see layout, figure 1) were the ones most frequently referred to in a face-to-face briefing. The upper wind charts were provided so that the pilot could obtain high-altitude flight planning winds before contacting the forecaster.

The third alternative was very similar to the second: It was the Regional Briefing Station (RBS)—satellite concept. A regional 24-hour weather station would be responsible for supporting near-by stations (satellites) during periods of closure. A standardized briefing display board would be maintained at both the satellite and the RBS station. The pilot would study the standardized briefing display to get a general outlook of the weather and then do his preflight planning. He would then call the RBS by autovon, on a phone reserved for this purpose only, and receive his 175-1 briefing.

As AWS researched these three alternatives, they came up with the big question — do we really *need* a 175-1 briefing? To answer this question, they surveyed pilots at 15 bases. At these bases all types of aircraft and all age groups of pilots were represented. The pilots were asked to fill out a survey form after they

RBS – Plan B for Weather Forecast Service

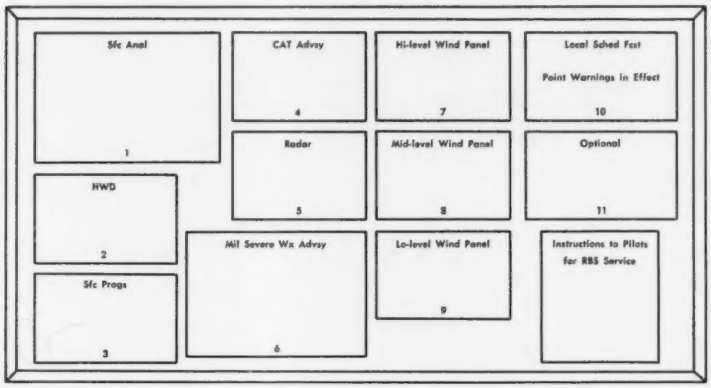


Figure 1. Standardized Pilot Briefing Display

had received a normal 175-1 briefing. The survey asked questions such as: Do you ever use this form again in flight? Do you think it is necessary to have a face-to-face briefing? Did the briefing you just received aid in making decisions concerning this flight? Would you obtain a weather briefing if it was not required by regulation? From the responses received, AWS determined that yes, pilots *did* want to receive a briefing, but that it probably was not necessary for it to be face-to-face. And yes, the majority of them did refer to the 175-1 in flight.

With these three alternatives in front of them and knowing that pilots did want a 175-1 briefing, AWS staffers went to work to eliminate two of the three methods.

For safety reasons the first alternative (no briefing — no 175-1) was discarded. The second one, a central briefing section at AFGWC, was discarded because of the additional manning that would be required and the cost of setting it up. The third alternative, the regional briefing station, was chosen for several reasons. First, the satellite bases must be near the RBS. (Note: See a partial list of RBS and satellite stations in figure 2. Also see the IFR Supplement for hours of operations of satellite stations.) The RBS would now have a vested interest in the weather at the satellite because the same pattern would or could affect the RBS. Many of the RBS sites could also provide radar coverage for the satellite bases and possibly could monitor the satellite station's PFSV frequency. The most important reason for chosing the RBS concept, though, was that it could be implemented almost immediately without an increase in personnel at the regional sites.

This is briefly the history of the RBS concept. What is important now is how is the system going to affect us as crewmembers. To give an example let's play show and tell. Follow us now on a magical mystical tour of a vacant base weather shop.

To help us find out how the system really works — and to help us write this feature — we went down to the weather station at Scott (we are a satellite station of Blytheville AFB from 1800 local to 0100 local) and planned a flight to the east coast. There were several things that we found out from our visit to the base weather counter after the forecaster had gone home for the night. First, we had an eerie feeling standing in front of a bare counter with the walls covered with facsimile charts and only the repetitious rattetat-tat of the teletype breaking the silence. Also, we wished that those meteorological symbols, teletype weather sequence codes, and hieroglyphics used to depict weather phenomenon, which we last reviewed in pilot training, were a little more familiar.

We studied the standardized display board, got our preflight winds from the upper wind chart for flight planning, filled out our Forms 70 and 175, and then called Blytheville on autovon (via special speaker phone, supplied so that the entire crew can hear the briefing) to talk to the forecaster and complete our

RBS	Satellite (reduced forecaster service)
Westover	Otis
McGuire	Dover
Langley	Shaw, Myrtle Beach
Seymour Johnson	Pope
Robins	Charleston, Maxwell
Eglin	Hurlburt, Tyndall
MacDill	Homestead
Barksdale	England
Blytheville	Little Rock, Columbus, Scott
Randolph	Bergstrom
Altus	Sheppard, Tinker, Cannon
Carswell	Ft Wolters, Gray AAF
McConnell	Richards-Gebaur, Forbes
Luke (SAGE)	Luke (BWS), Kirtland, Holloman
Hill	Mountain Home
March	Norton, George, Nellis
Beale	McClellan, Hamilton
McChord (SAGE)	McChord (BWS)

Figure 2. Regional Briefing Stations and Satellites

175-1. While our early-evening call went right through, we found out we were just plain lucky. You can expect anywhere from 10 to 30 minutes delay because of other satellite bases calling your RBS or because of other operational demands. Remember, flight crews calling in are number six in the weather man's list of priorities, and many bases have heavy activity until late in the evening.

To help smooth your first-encounter with a similar situation, and to assist and help familiarize you with the RBS procedures, we offer this checklist.

The Checklist

1. **Look and read.** If you are unfamiliar with the standardized pilot briefing display or if the weather station facilities are a little foreign to you, stop and look around the room. The first thing to catch your eye should be an eight-by-four foot bordered area containing some 10 charts and a set of instructions on how to obtain RBS service. For orientation, go ahead and read the instructions, then take a look at the charts and local scheduled forecast.

2. **Scan and plan.** Now that you've an idea of what's available and where it's located, you can start obtaining enough info to flight plan without contacting the forecaster. In your data gathering, read the last teletype report for your destination and alternate weather. (Note: FLIP Planning, Section II, Meteorological Data, gives a key to teletype weather reports.) A glance at the local dissemination device will give you the latest local surface observation.

From the winds aloft panels (charts 7, 8, or 9) you can see what the last observed winds are for your proposed altitude. (Remember, those winds are *true*, not magnetic.) Areas of severe weather are plotted on chart 6, Military Weather Advisory, and hazards such as icing, turbulence, and over-water thunderstorms are portrayed on chart 4. Now go flight plan, because by this time you are weather-wise enough to select your route, destination, and alternate, and to figure ETD, ETE, and ETE to alternate.

3. **Fill a few squares.** The next thing we suggest is to get a blank Flight Weather Briefing form, DD Form 175-1, and look it over so you'll be familiar with the blocks. Go ahead and fill in parts I and II, the mission and takeoff data sections. The surface observation and local forecast board will have the info for this.

4. **Make the call.** You are now ready to call the regional forecaster so read and heed the instructions for operating the phone. It may be an external speaker-phone, with special on-off volume settings. Also be prepared to furnish the RBS forecaster these items: (1) your name, (2) aircraft identification and type, (3) departure point, destination, and alternate, (4) VFR or IFR and proposed altitude, (5) ETD, ETE, and ETE to alternate, (6) route, (7) en route stops (in order, with ETAs.)

5. **Listen, log, and ask.** From here on the procedure is like any other weather briefing; the forecaster will give you the figures for each block of the 175-1. The only thing different is that *you* will be writing in the figures instead of having the forecaster do it. You should get the same information and ask the same questions as if the forecaster were standing across the counter from you. In our case, our forecaster described the general weather conditions at departure, en route, destination, and alternate, referring constantly to the charts on the standard pilot briefing display. Don't forget you can and should ask questions throughout the briefing.

What we've described is a normal self-briefing sequence. However, there's no reason you can't call the forecaster whenever you want. Let us make it clear that if you have any questions or special requirements prior to flight planning, go ahead and call the RBS forecaster.

Operations and weather folks have taken steps to ensure that MAC Category I flights get special attention and the best service available for their particular needs. Aircrews departing Charleston or Dover for missions headed overseas can obtain forecast support from McGuire base

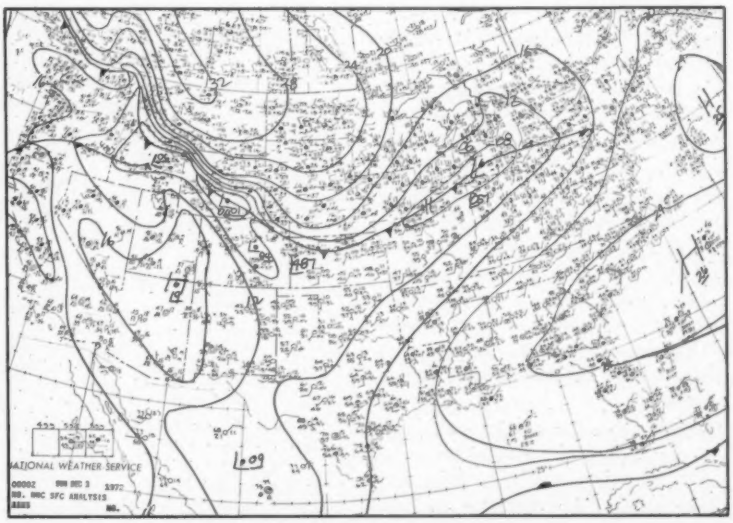


Chart 1. Surface Analysis

RBS – Plan B for Weather Forecast Service

weather station, while those leaving from McChord and Norton will telephone the base weather station at Travis. Forecasters at these stations routinely handle overseas weather briefings and will be prepared to provide aircrews with any flight information needed.

At Charleston, Dover, Norton, and McChord, a speaker-phone will allow the entire crew to hear the briefing, and a telecopier will allow the McGuire and Travis forecasters to transmit a completed DD Form 175-1 to the aircrews. This should reduce briefing time and will allow the crew to give undivided attention to the briefing rather than having to simultaneously copy the information. Aircrews at these bases will obtain their computer flight plans from the command post. Though the RBS forecaster will not have copies, each flight plan will have been checked for accuracy by the 21 or 22 AF command post forecaster. These unique procedures have been established to minimize aircrew delays and weather service degradation for Category I flights.

The Charts

There is a vast amount of information available on the various charts in the pilot's briefing display. Without going into a prolonged course in meteorology, we would like to briefly explain this display. Charts 1, 2, 5, 7, 8, and 9 present actual observed data, while charts 3, 4, and 6 offer forecast conditions.

Chart 1 is the surface analysis and it shows the general weather patterns or major weather systems. The centers of high and low pressure areas and the fronts are depicted.

From chart 2, the horizontal weather depiction, you can get the ceiling and visibility conditions. When ceilings are below 1,000 feet, or visibility is below 3 miles, or both, the

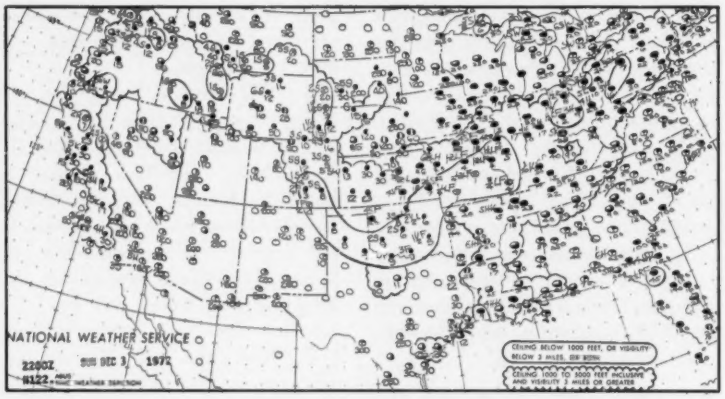

NATIONAL WEATHER SERVICE
2200Z
SUN DEC 3 1972
CEILING BELOW 1000 FEET, OR VISIBILITY BELOW 3 MILES, OR BOTH
1000 FEET TO 3000 FEET INCLUSIVE AND VISIBILITY 3 MILES OR GREATER

Chart 2. Horizontal Weather Depiction

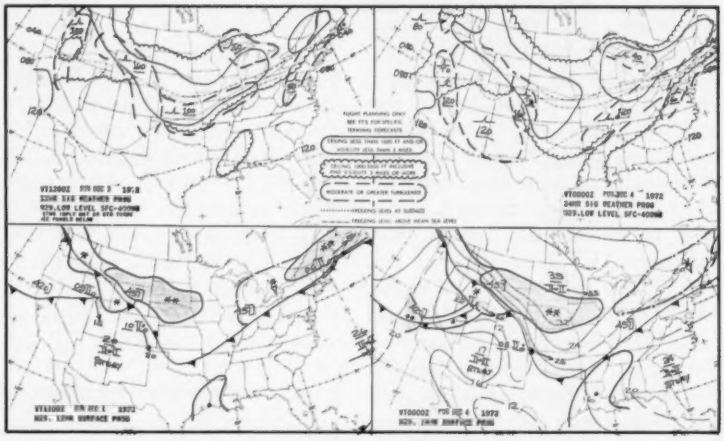


Chart 3. Surface Progs

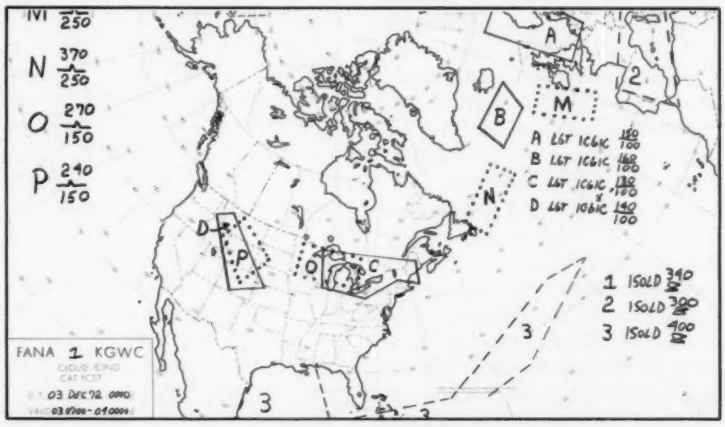


Chart 4. CAT Advisory

area is surrounded by a smooth line. Where ceilings are between 1,000 and 5,000 feet and visibility is 3 miles or greater the areas are enclosed by scalloped lines.

The surface progs displayed as chart 3 show significant surface weather which has been forecast and include depictions of ceilings, visibilities, freezing levels, fronts and areas of precip for the next 12 and 24-hour periods.

Information on charts 4 (clouds, icing, and CAT), 7, 8, and 9 (winds aloft) was discussed earlier in the text. Chart 10 will provide the 24-hour local area forecast and any weather warnings for the local area.

One display space, number 11, is reserved for an optional chart or listing and displays information needed to meet local operational requirements. Optional data include:

1. Astronomical/Climatological Tables
2. RBS/PFSV/EWAS facilities
3. Low level bombing route forecasts
4. Primary alternate forecasts
5. Range/drop-zone forecasts

The Commercial

Well, that's the big picture of the RBS concept of operation. Because of the AWS drawdown, it's up to us to make the most from the information which is presented. Remember, it's not a total self-brief program, and we should ask the RBS forecaster or local observer for any assistance necessary. We must make sure that we get the weather service we need for a safe flying operation.

Since the new program puts more demands on flight crews, we all will need to brush up on the symbols and charts (check AFM 105-5, *Weather for Aircrews*) and allow some additional time for flight planning. Or maybe we can schedule our flight planning during the hours when our local forecasters are available. The FLIP IFR Supplement gives the hours forecasting service and PFSV are available; check the individual airfield listing. Also, in the back of the Supplement is a list of the facilities where you may obtain weather briefings if instructions on forecasting services are not available locally.

AWS and the local base weather stations are doing all they can to continue to provide you the best possible weather support with their remaining resources. Though there will be unavoidable delays and some inconvenience, they ask your cooperation and understanding. If you have any complaints or criticisms with the RBS concept or service, don't take them out on the guy in the field who is striving to do the best with limited resources of which he has no control. Instead, your system problems should be documented and addressed through your host command operational channels. Or if the system is okay but you are not satisfied with the actual weather service, then document your complaints and submit them to AWS or write a hazard report.

More with less is the name of the game — and weathermen and aircrews both may feel the crunch. But the well prepared troops will still get the info they need — and won't get caught with their drawdowns down.

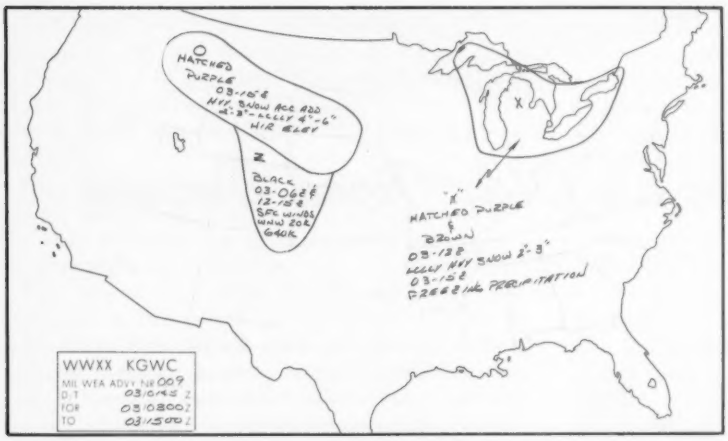


Chart 6. Military Severe Weather Advisory

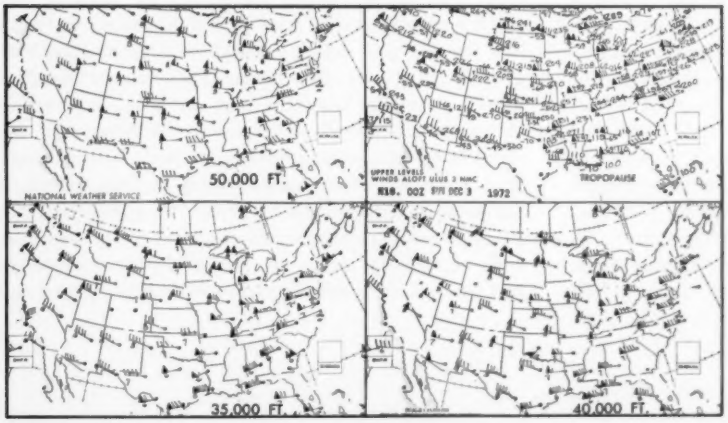
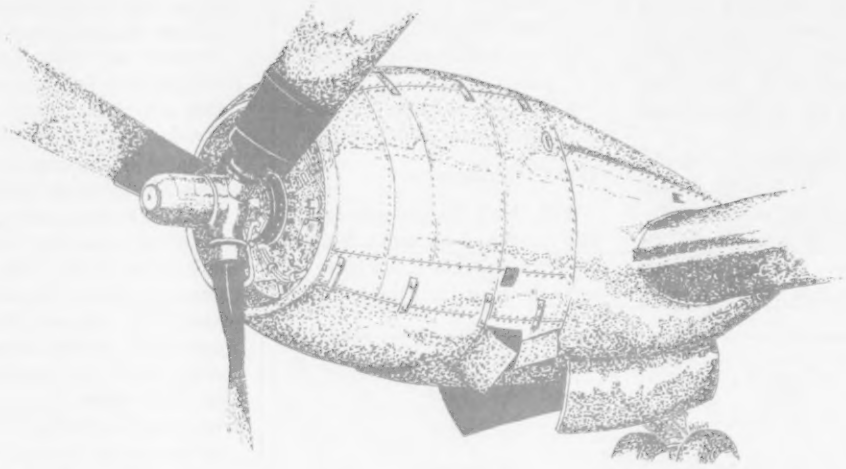


Chart 7. Hi-level Wind Panel



A Note from an Old, Tired Engine

by Capt Joe Panza, 375 AAWg

Dear TMF:

Like most of my R-2800 brothers, I have gained a lot of experience. I started flying in early 1955, and in those 17 years I have logged over 10,000 hours. Actually, I think I have held up quite well. Every 2,000 hours I go back to the hospital at Dallas or Gary and receive several organ transplants — rebuilt cylinders, new pistons, and most of my moving parts — and this should, hypothetically, keep me in new condition. But I've had a few problems. Sometimes the corpsmen or doctors at the hospital slip up, and I don't perform up to standard. Other times, I receive good first-aid or major treatment on the ramp, but sometimes the repair work is quick and incomplete and I get sick again. (This seems to happen more often when the men are working on me don't bother to use those greasy blue tech data books.)

Even when I get fixed right I take terrible abuse from a few airplane drivers. I really love the guys who go easy on my throttle, make slow smooth power changes, and watch all the limitations they read about in the Dash One. For those troops I can last forever. But, you wouldn't *believe* the abuse some others have put me through. Sometimes I get so mad, I could just blow a jug!

For example: Every once in awhile some jock leaps into the seat and runs his checklist up to start engines. Then he pumps my throttle around like he thinks it's a tire pump, and he hits the starter, still pumping away on the throttle. By the time he gets the ignition on, I am about to drown in the fuel pumped into me by the accelerator pump in the carburetor. I am so busy trying to handle all that raw fuel that I forget to start. Then this guy shoves my throttle open and I get a big breath of fresh air and try to start — but my throttle stays open and the fuel-air mixture goes so lean that I get sick and

barf right out through my carburetor. Now let me tell you, when I do that everyone knows it! Once I coughed back so hard I blew the boot off my carb and damaged the carb heat door.

Another guy cranked me up when I was cold and taxied out before my oil got warm. That old, thick, cold oil didn't lubricate my jugs too well and I wore about 500 hours worth of metal off my cylinder walls.

Then there's the guy who got us lined up on the runway and shoved my throttle open so fast that my plugs couldn't keep up with the temperature change. Fouled my plugs so bad, I wished engines could take Alka-Seltzer.

And would you believe that some people used to make me stay at climb power all the way from level off to the other end of the mission? Not only that, but some of those guys really expect me to climb to altitude every time at METO power and still live 2,000 hours between overhauls!

Did I tell you about the time I was set at manual lean and left untouched for three hours? I got so lean that I just knew something was going to give. It did but not for three flights after that one.

Right now all my cousins, brothers, and I are suffering from some strange undiagnosed malady. I don't think age is the problem. Whatever it is, it seems to cause our jugs to fail for no known reason. We are losing over twice as many as we used to. It looks like the experts may be onto the cause, but corrective action will take several months. We even have generals keeping tabs on our progress. Isn't there some way you can get these guys to go easy on me until they find out what our problems really are?

Please, sir, ask those maintenance guys to pay attention to their tech data when they work on me and make sure I'm well before they turn me back to the operators. Then see if you can't make sure the operators treat me gently. I know that METO stands for Max Power Except for Takeoff, but I will live longer if they will let me climb out at climb power, and once we get leveled off, I would be happier if they would let me take it easy at no more than 1,200 BHP. When they set my manual lean adjustment, have them recheck me periodically, say every hour or whenever my power setting is changed. On takeoff, I much prefer to have my throttles shoved in slowly and smoothly (and not too far, either).

One other thing to keep in mind is that I may react slowly. After I have been abused, I often think about it for a couple of flights and *then* get mad and quit. Of course, this sometimes causes me to punish one of the good guys instead of the guy who started the whole thing. Fortunately, my brother on the other wing can carry the load for me if I do quit, but if both of us ever give out — I don't like to think about it.

Lately my carburetor has been running so lean on climbout that I get all feverish from internal temperature every time I run at climb power. I have been feeling these terrible pains in a couple of my cylinders, but no one has written me up yet.

Last, *please* get those operators to watch my gages and my behavior. If I appear to have something wrong, or if they accidentally exceed my limits, they should make an entry in my medical record, the AFTO Form 781A.

Thanks for hearing me out. I'll do my best to carry these people any place they want to go — but there *are* a few out there who really make life tough for me.

Sincerely,

Gary D. Engine

GARY D. ENGINE
R2800-99W

* * *

Dear Gary:

We will do our best to spread the word.

THE MAC FLYER

Letters Letters

Dear TMF Editor:

Reference "Those Man-Made Rocks in the Sky" by Captain Budd (November issue). In light of the problems existing within the Air Force and MAC regarding experience levels, there is a statement on page 6 that might need explanation. To suggest that our pilots can avoid vortex turbulence by rotating early and climbing out above the preceding aircraft's flight path could be dangerous. As you well know, most jet aircraft *must* rotate on a speed schedule and the climbing profile is usually dictated by performance factors.

The suggestion to land beyond the touchdown point of the preceding aircraft is questionable also. Runway length and pilot technique in both aircraft must be carefully weighed before attempting an abnormal touchdown. Perhaps the best way to avoid the potential hazard is insistence on spacing even if it means a go-around.

I hope you realize I know the professional MAC pilot will not be "sucked" into a trap by such literature, but my concern is for those who have not yet earned the professional status.

This is my first letter to any editor.

(name withheld)

* * *

★ Both your points are valid, especially for our heavy jet operations. And I think you'll agree that the key thought is: operate your aircraft out of the disturbed air. The option presented — to fly above the turbulence via early takeoff or late landing — cannot be used in many MAC cases. The alternative: wait for the turbulence to move away or dissipate. As you indicated, no competent MAC aircraft commander would fight the laws of aerodynamics.

Incidentally, I hope more non-writers will speak up as you have. Line troops — squadron commanders included — have far more current knowledge than we do and your letters are very welcome.

* * *

Dear TMF Editor:

The November article on Wake Island brought back memories of years ago. I witnessed the surrender ceremony on 4 September 1945 as a 1st Lieutenant in the 7th Army Airways Communications System (AACS) Wing.

A minor point: the Japanese admiral's name was Shigematsu Sakaibara, not Sahaiban as stated in the article. Sakaibara was later tried at Kwajalein on charges of committing atrocities against American military and civilian personnel captured on Wake Island. He was found guilty and subsequently executed.

Brig Gen Robert F. King
Wash ANG
Asst Adj Gen, Air
State of Washington

* * *

★ The FAA brochure on Wake Island gives Sahaiban while the Library at Belleville supports Sakaibara. Note: Gen King also sent a copy of the "Instrument of Surrender"; we'll reproduce it for anyone interested.

* * *

Dear TMF Editor:

Major Pocock's article, "That's Why I Let George Do It," (October) has a lot of good advice in it. As an old Gooney Bird driver, I especially liked the reminder to the younger pilots that if a C-12 compass or C-5 AHRU fails in mag, you just put it in DG and line it up with the rest of the world.

One point was technically incorrect, however. The autopilot in the C-141 does not normally use gyro number three. Rather, the TPLC decides which of the three gyros have intermediate readings in pitch and bank and sends that information to the autopilot and the two flight directors. There is no way for the pilot to tell which gyro is feeding either axis of the autopilot. Moreover, if both gyro numbers 1 and 2 fail, the TPLC will disconnect the autopilot and remove all pitch and bank steering bars. The only way the pilot can make number three gyro operate the autopilot is to pull both power circuit breakers to the TPLC. I do agree with Major Pocock that the autopilot will provide good back-up for a failed ADI or its associated gyro.

Lt Col Albert K. Stebbins, III
Chief, Aircrew Standardization
436th Military Airlift Wing

* * *

★ Maj Pocock replies: In the article, I insinuated that the C-141 autopilot does not have access to all three gyros, but it does. The problem sentence should have read: "Since the autopilot also uses gyro number three, it can be used as a double check should either of the pilots' ADI gyros fail."

* * *

Dear TMF Editor:

Enjoyed your article "Routine to the Unaware" in November. However, two other units also accomplished the same transition: the 301st ARRSq at Homestead AFB and the 302d ARRSq at Luke AFB. The reliability and capability of the HH-34 is nothing new to the 301st. Last April (only

Letters Letters Letters Letters Letters

four months after receiving our last aircraft) this unit deployed half of its UE helicopters to Patrick AFB for 10 days, flying 26 sorties and 52 hours in support of Apollo 16. Personnel of the 301st deserve recognition for the success of this mission as well as for their safe transition and continued accident-free performance.

Maj Jorge Acosta
Air Force Advisor
301st ARRSq

* * *

★ The reason the 304th ARRSq was singled out for recognition is quite simple. Mr. Myers called to ask if we would like a story on this unit's transition. We agreed — and he sent us what you read in November. This was not a matter of slighting the 301st or 302d; instead, we accepted one man's response to our continual request for articles from the field.

* * *

Dear TMF Editor:

While I was flattered to receive a byline for the article "Routine to the Unaware" (Nov 72), I hasten to give credit where credit is due. The author of the original story is Lt Col James H. Barnard, Commander of the 304th ARRSq, Portland IAP, Oregon.

Please relay this correction to your readers.

George M. Myers
Chief, Office of
Information
HQ Western AFRR

* * *

★ In the original copy, Lt Col Barnard was identified as the author. We overlooked this info and credited the wrong man. Col Barnard, thanks for the feature!

* * *

Dear TMF Editor:

The update on my old "Complacency" poem was a most pleasant surprise.

One complaint, though: All of us in the 137th MAWg really cherish our Aeromeds and wish somehow that they hadn't been replaced by "A is Alert" (not that we don't appreciate them, too). Maybe it's because the Aeromeds are always so "gung-ho" and never complacent?

Col Stanley F. H. Newman
Deputy Commander
Oklahoma ANG

* * *

★ Editorial license prevailed—we thought broadening the scope to include more of our MAC-wide audience would enhance your anti-complacency crusade.

* * *

Dear TMF Editor:

In our letter on aero clubs which appeared in November, we stated that the subject of carrying passengers in aero club aircraft was under study at Air Force level. We now have an answer to our query from AF/DPMSP. Since the passenger question is a major irritant to aero club members, I will present the rationale behind the Air Force decision in some detail.

The Air Force decision is that it would not be in the best interest of the Air Force to liberalize aero club passenger carrying to the extent of lifting all restrictions and permitting passenger carrying without reservations. Their decision is based on:

a. If passenger restrictions are lifted, the accident rate may increase and seriously jeopardize the entire Aero Club Program. From 1956 to 1963 (with no passenger restrictions) there were 113 fatalities, and from then to 5 March 1972 (with passenger restrictions) there were only 53 fatalities.

b. There have been Congressional inquiries and complaints from various groups concerning aero clubs carrying passengers, denying business to local commercial aircraft operators.

c. Aero club members have carried passengers for pay, and fatalities to passengers and monetary loss in payment of law suits have resulted.

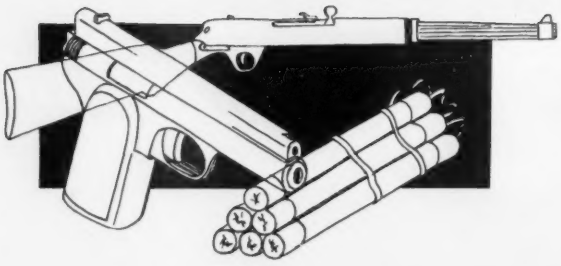
d. AF is concerned about the "show off" factor involving young, inexperienced aero club pilots carrying passengers.

e. Higher accident rates and liability exposure would lead to higher insurance premium rates. Insurance companies indicate that the cost of casualty insurance, limited to $100,000 per seat, would be $195,189 per year for the 408 planes now in the Air Force aero club fleets. This is $148,208 more per year than Air Force aero clubs are currently paying into the self-insurance program for *no limit* of liability coverage.

f. To create and administer a separate insurance reserve and non-appropriated fund insurance program to allow unrestricted passenger carrying by aero club pilots would cause undesirable administrative and employee costs. To create an insurance reserve capable of indemnifying this risk would undoubtedly require fees which would be viewed as objectionable and exorbitant.

There is one ray of hope. Air Force is working on a proposed change to AFM 215-8 which, if approved, will encourage individuals who are not aero club members, but who are eligible for membership, to become non-pilot members so that they may ride as passengers.

Hugh F. Redden
Director, Personnel Services
MAC/DPS



One Loss i

Whether triggered by honest mistakes or outright sabotage, an aircraft crash hurts MAC. Safety and security are becoming different sides of the same coin.

THE SIGN ON THE front of the big brick building reads: "Military Airlift Command." And those working inside the modern fortress know the name could just as well be "Military Rescue, Recovery, Weather Reconnaissance, Photo-Mapping, Aeromedical, VIP-Carrying, Mission Support, *and* Airlift Command." Unwieldy, perhaps, but a better statement of all we do — and strong evidence of both the importance and the varieties of aircraft needed to perform these many tasks. MAC folks also know that without aircraft there would be no way to perform our missions, and without a mission there would be no need for just a "Military Command." Consequently we see aircraft as our most important resource, next to people.

Over the years we have lost quite a number of aircraft through accidents. The cause (whether materiel failure, maintenance malpractice, aircrew error, weather problems, air traffic control snafus; you name it) made little difference; the result was the same: scratch one machine. But over those same years we've been cutting down on these losses, and we've shaved the MAC accident rate per hundred thousand flying hours from tens to tenths. Obviously, a lot of our success rests in the universality of our safety program — a program which includes the commanders who insist on it, the staffers who plan and monitor it, and the line guys who live it. But the biggest emphasis has always been on the flight crews and their first line supporters, the mechanics. In other words, the group that was closest to the action,was the biggest factor in the safety program.

Now there's a new reason for aircraft losses: the nut or hostile agent bent on grand theft or destruction of airframes, of others, and often of himself. It might be a disgruntled soul aiming at striking back at the faceless establishment, or a militant terrorist bent on drawing world attention to his plight, or an extortionist looking for an easy way to make a million, or a copycat, trying to imitate the dramatic exploits of one of the other three. Whether the culprit is a traditional cause or one of the new breed of violent agents, the results on command resources are the same — our best men and machines are lost into smoking holes.

Today we're involved in a major effort to cope with the new threat, and we must handle it as well as we've handled the old. For traditional aircraft safety, we aimed at the men closest to the machines, then moved out to other groups. In contrast, for preventing willful destruction we've got to reach the other end of the spectrum first, then wrap it up with flight crew involvement. And it's got to be an "everyone in the pool" effort. Flight crews can't say, "The birds are okay as long as we are on them, so it must be a ground problem." And the gas pumpers and tug drivers and sky cops can't say, "I don't fly 'em, so I can't save 'em." It doesn't work that way, and anyone who refuses to let part of the buck stop with him is leaving a hole in the net — a hole that could let some nut loose and cost us a $50 million bird.

What it boils down to is this: if the conduct of your business requires you to be on or about an airplane, or even close enough to get a good look at one, security is part of your responsibility. When you accept this bit of reality, these hard facts will be extra meaningful:

★ The MAC mission and our aircraft are constantly being threatened by persons who wish us ill and want to prove it.

★ These persons may execute their actions openly, or do their damage in secret.

★ One big threat is from dissident groups, foreign or domestic, pledged to anarchy and violence.

is as Bad as Another

★ Another threat comes from disaffected individuals, including misguided blue suiters bent on willful mismaintenance or sabotage. These latter types, who look like they are on our side, can exploit their protective coloration to catch us with our guard down.

★ To quote COMAC, "Only a *total* security effort can protect our aircraft . . . Every member of our command — security police, maintenance, operations, cargo handling, all other services — must be keenly aware of his individual responsibilities."

Okay, you now accept the fact that the risks do exist, and that you must help. Your next question is: "So what do I do?" The answer lies in three short items, each one easily committed to memory.

First, **demand a badge.** The only people working around your aircraft ought to be folks that you know and trust. Since there's no way that you can know everyone even at home station, the next best thing is to make sure that every soul with access to the machine which will carry your tender warm carcass through footless halls of space has a proper restricted area badge.

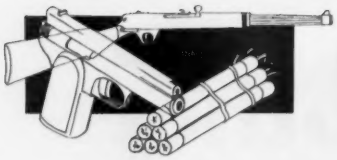
Second, **wear a badge.** If everyone else must sport a badge, then you'd better set the proper example and wear yours. While we can't make any promises, we've heard that some eager flight examiners and security police may make it very possible for non-badge wearers to get an unusually close view of the ramp surface texture. From experience we know how embarrassing it is to be escorted away by a bevy of white hats with tommy guns.

Third, **bag anyone without a badge.** If you and all the other good guys are wearing badges, then anyone without a badge readily visible ought to catch your attention. And you ought to catch *him*. If he offers a typical reason: "I haven't been issued one yet," or "I left it in my jacket back in the shop," or "See here! I'm a _____ and I don't need one!", don't buy it. Detain the individual and figure out some way to get assistance. If *you* are wrong, *he's* the one who owes you an apology for putting you on the spot. If *he's* wrong, you might just have saved your life — and that's no place for "maybe" or assuming or betting on slim odds.

Ideally, each of our aircraft, when on the ground, would be kept in a tightly-controlled limited-access area, protected by a strong fence and defended by armed guards and dogs. Since that will never come to pass in the real world (it's awfully hard to justify the expense of one platoon of green berets for each of our birds), we will continue to operate under conditions of

partial-to-total exposure. The risk: loss of MAC aircraft and someone's life — possibly yours. The price: your pledge to become involved in security, and the determination to put your pledge into practice. The place to find all you need to know: MAC Reg 207-1, which tells commanders, functional managers, and everyone else about the threat, how to understand it, and — most important — how to counter it.

No one who has seen the photo of three civil heavy jets burning in the desert will ever forget the sight, nor will those who investigated the T-39 or C-130 which the Air Force lost to willful action. Accident or purposeful act, each of these aircraft was destroyed — and a MAC bird could be next. Obviously, since aircraft are critical to MAC's existence, both safety and security are our business — yours *and* mine. After all, whether bashed due to mechanical failure or purposeful destruction, one loss is just as costly as another.



The Hijack Threat

Unless you've spent the last ten years evading capture in some island jungle or vegetating in a padded cell, you are well aware of the great wave of hijackings which plagues civil carriers. You may know that during the year ending in August 1972, there were 66 hijack and seven bombing cases around the world. And you might guess that American carriers, which perform the bulk of the operations, also suffered the bulk of the incidents, damage, and losses.

What you may not have noticed, though, is that over the years three separate trends appear to have developed. First came the political exile, heading home or to some haven after a bad experience here. Then came the political militant, seeking support or publicity for some cause, and willing to shoot quickly if he thought it necessary. The third wave involved the extortionist, either a zealot springloaded to die for some reason or a veteran criminal seeking financial redress for the ways society had wronged him. Interestingly, during the latter two trends, there was a parallel risk from copycatism — the work of stupid but dangerous mimics influenced by press sensationalism and wanting a piece of the glory, or action, or cash.

So why tell you? Isn't MAC exempt from these hazards? Definitely not! Though our more tightly-controlled environment does give some advantages, there have been attempts to hijack MAC aircraft. Recently, the swift and positive actions of an alert NCO averted a C-5 hijack attempt in Taiwan, and a few years ago the aggressive actions taken by a C-141's crewmembers thwarted the hijacking by a rifle-toting soldier. As we reported in the preceding feature, we *do* face a threat. Our threat is global and constantly varying, because of our quick responsive airlift to and from distressed areas.

Just what is MAC's anti-hijacking posture? As you might guess, discussing the sensitive fine points here would only be in the best interest of the potential hijacker. However, there are some underlying concepts which need a brief review.

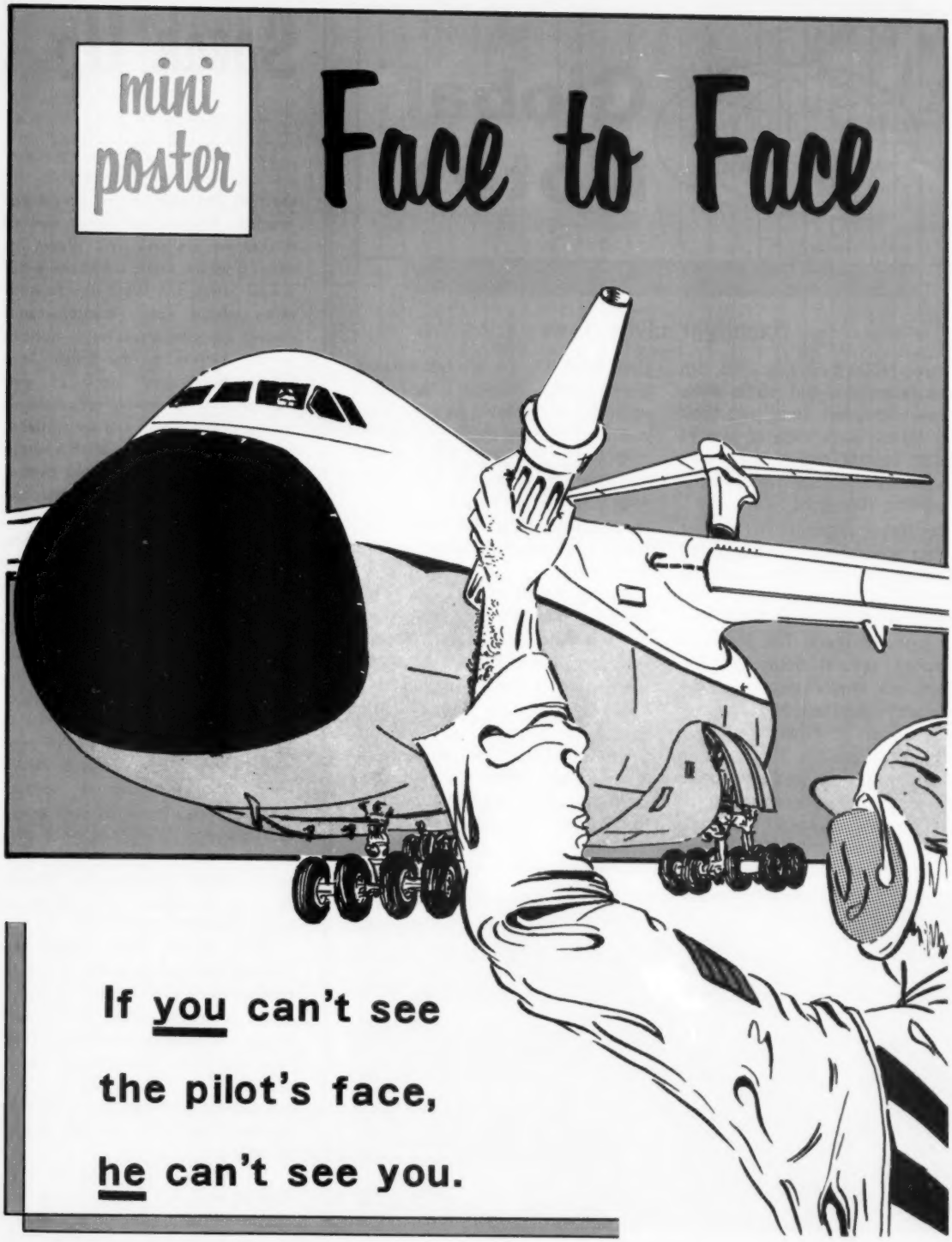
The ultimate aim in dealing with the hijacking problem is to build an international climate in which a hijacker can find no sanctuary and thus find little hope of success. This calls for strong legislation, realistic treaties, and universal enforcement of controls. To achieve this aim will take considerable time.

Since we have little control over legislative actions and need positive deterrence *now*, we — in MAC as well as the commercials — must resort to mechanical controls. Our first and primary defense is to keep the hijacker off the airplane. This calls for detection, which includes applying at all bases the search, surveillance, and premission screening activities which we have long used at aerial ports to control the movement of contraband shipments. In the event this system fails the next step is to combat the hijacker on the ground prior to getting in the air. The last chance of course is to cope with the problem in flight. To paraphrase the words of an unwilling politician, our position must be this: We refuse to be nominated as a candidate for hijacking; we refuse to provide an opportunity for hijacking; and we refuse to be hijacked. While it's hard to think of a peaceful flight line as a war zone, we've got to be ready — if the situation turns into combat we must not flinch.

All of MAC's plain language guidance on the entire aircraft security posture, especially the anti-hijacking philosophies and techniques, is being consolidated in a new MAC regulation, "Air Operations Security." According to the project managers in MAC/DO, the reg should be in the field by April. It's a safe bet that you'll be encouraged to pay attention, because questions *will* be asked. And the best way to guarantee that your questioner will be one of the good guys instead of a gun-toting hostile is to know enough answers to handle the hijack threat at any time.

mini poster

Face to Face



If you can't see
the pilot's face,
he can't see you.

Global Notes

flashlight saves three

Three NCOs from Clark AB, Sgt Chris Chambers and SSgts Mike Moran and Grant Ross, owe their lives to the dedication of two 31 ARRSq rescue crews, their own determination to survive, and the beam of a flashlight.

The three sergeants were spear fishing around some reefs about 20 miles off Poro Point, when the Filipino banca boat crew who had taken the divers out to the reef lost sight of them. The Filipinos searched several hours for the divers, but finally gave up in despair and went back to Poro Point and reported them as missing.

This is where the 31st got into the act. Since it was now dark, the rescue controllers decided a daylight search would be more successful. However, later in the evening the rescue center learned that SSgt Moran always carried a powerful 50-hour flashlight when he went diving. A night rescue now seemed more promising, and an HC-130 and HH-3 launched to the search area. After four and a half hours of unsuccessful searching, the Jolly Green and '130 headed back toward Poro Point.

As the rescue crews headed for land, Sgt Moran's flashlight broke the darkness and seven minutes later the three tired sergeants were aboard the helicopter.

As soon as the divers found that their banca boat had left them, they began swimming back to Poro Point. When the sergeants were rescued, 13-1/2 hours after they began swimming, they were 17 miles away from the area in which they were reported lost.

Speak Up !

Like the groundhog whose day we celebrate on February 2, the staff of The MAC Flyer would appreciate finding out what sort of a shadow we cast. We know we exist, and we think we know what we're doing, but we'd like to hear more about your reactions and views. As you may have noticed in our Letters to the Editor features, more and more of you readers are sounding off. According to some, we're too specialized; others say we don't publish enough narrow-scope features. No matter what your views, we encourage you to speak up — and we've even made the job as easy as possible.

Here's all we'd like you to do. Clip out the **Speak Up!** forms, pass one to a friend, grab a pen, and make a few check marks. Note the special spaces concerning article ideas — tell us what you think would make a red-hot flying safety topic. Also note the "Please contact me" item — if you're seriously interested in being a volunteer author (or even a replacement editor), please list your name and address. We'll not only contact you but will offer some materials which should make submitting a volunteer manuscript a more pleasant experience.

Three simple steps: **check** the appropriate boxes; **write** in a suggestion or two; and **think** seriously about investing some talent and thought in **your** fly safe book. Then fold the form, seal it with tape, and drop it in a mailbox. We'll summarize your opinions and suggestions, and offer a recap in late spring.

As C. R. Terror would say, "Speak up, lads. I know ya got opinions—I can hear ya mutterin'."

CUT ALONG SOLID LINE

CUT ALONG SOLID LINE

CUT ALONG SOLID LINE

Speak Up!

Reader Response Form

How would you rate the following features?

Feature/Type of Article	Dead	So-So	Okay	Great
Aerodynamics				
Weather				
Mishap/Accident Review				
Maintenance				
New Equipment				
Transport Aircraft				
Helicopters				
Special Purpose Aircraft				
Mission Support Aircraft				
Flight Medicine				
Good Show				
Unit Specials				
Photo Stories				
Short Stories				
C. R. Terror				
Quick Stoppers				
Other: _____				

I think you could improve The MAC Flyer by _____

_____

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I would like to see an article on _____

Please contact me for an article:

Name _____

Address _____

Age

Under 21	21-25	25-30	31-35	36-40	41-45	46-50	Over 50

Type Aircraft

C-5	C-9	C-130	C-135	C-141	Helicopter	Mission Support
Other (list)						

Crew Position

Plt	Nav	FE/FM	LM	Med	PJ	Other

Crew Qualification

Basic	Instructor	Flight Examiner	Non-qualified

CUT ALONG SOLID LINE

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DOD-318

The Editor
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DOD-318

The Editor
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Sure, you know what haze is — you've flown in it. And how do you define it?

Haze? Yes, That's ... Uh ...

Hey, pilot! Here's a little quiz on haze:

1. What is it?
2. Ever hear of a haze droplet?
3. How does a low-level inversion affect haze?
4. Ever receive a forecast with no clouds, yet you had to fly in IFR conditions?

And here come the answers: Haze is made up of fine dust or salt particles dispersed throughout a portion of the atmosphere. The particles are so small that they cannot be felt nor individually seen, but they diminish horizontal visibility and give the atmosphere a characteristic appearance that subdues all colors. Many haze formations are caused by the presence of an abundance of condensation nuclei and eventually become mist, fog, or clouds.

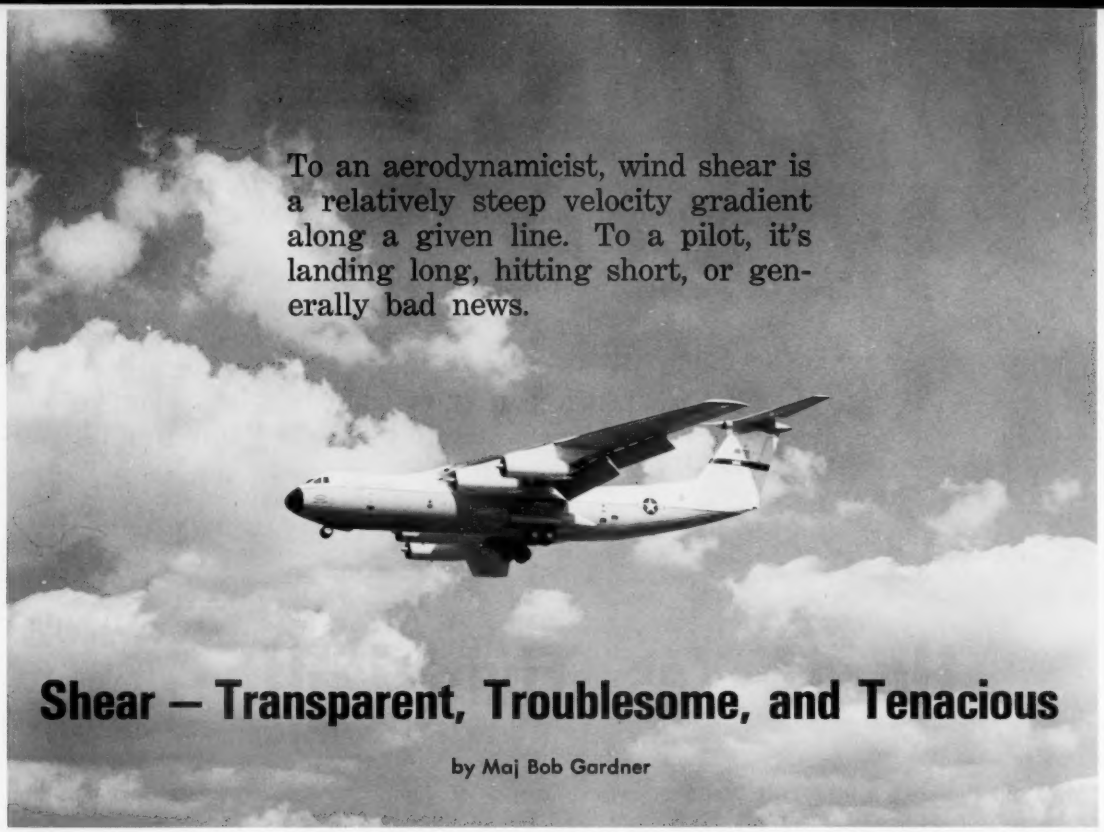
There is a definite difference between dry (small) and damp (larger) haze. Dry haze particles are small enough to scatter shorter wave lengths of light. Such haze particles produce a bluish color when the haze is viewed against a dark background, because only the slightly bluish scattered light is allowed to reach the eye. This same haze viewed against a light background appears as a yellowish veil, for here the principal effect is the removal of the blue components from the original light. Damp haze develops from slow condensation upon the haze particles. The basic distinction between the two varieties (dry and damp) is the difference in optical effects.

Haze is easily distinguished from mist, since mist yields only a gray obscuration due to its larger sized particles which do not appreciably scatter various wave lengths.

Haze droplets (a small liquid droplet contributing to an atmospheric haze condition) comprise the transition state between condensation nuclei and cloud or fog droplets. In flying areas near a sea coast, sea-salt solution droplets are responsible for the majority of visibility reductions in haze. Interestingly, the size of the haze droplet is known with much greater certainty than is the chemical nature and physical origin of the droplet.

Low-level temperature inversions (a situation where the temperature rises with altitude) have a "topping" or "capping" effect on haze particles and create an appearance of a horizon when viewed from above. In such cases, the true horizon is usually obscured by the haze layer. This phenomenon has several names: haze horizon, dust horizon, fog horizon, and smoke horizon. A haze layer is usually bounded at the top by the inversion and frequently extends downward to the ground. Haze in a coastal area can reduce the flight level visibility to nearly zero; however, generally the viz will be better than that but often less than three miles.

— Courtesy 4500 ABWg



To an aerodynamicist, wind shear is a relatively steep velocity gradient along a given line. To a pilot, it's landing long, hitting short, or generally bad news.

Shear — Transparent, Troublesome, and Tenacious

by Maj Bob Gardner

NEWS ITEM: DC-3 strikes street light 2,700 feet short of landing threshold, continues airborne for another 700 feet, then hits approach lights, knocks down utility poles, and finally comes to rest inverted against a residence.

Probable cause of the accident, as determined by the National Transportation Safety Board, was: "Failure of the pilot to recognize a wind shear condition and compensate for it . . . ."

* * *

News item: Two 747 crews reported their aircraft tended to ride high on the glide slope and airspeed continued to increase throughout the approach though power was reduced and gear and flaps were down. Both crews aborted their approaches and landed on another runway. It was later learned that during a two-hour period nine missed approaches by 747s, 727s, and 707s were made to the same runway.

The culprit — wind shear.

* * *

News item: A jet transport, after takeoff, built up an indicated airspeed of 150 knots at 850 feet altitude. At 900 feet the airspeed suddenly dropped to 100 knots. Fortunately, the crew made a successful recovery, though accelerations ranged from plus 0.1G to plus 1.6G.

The drastic change in airspeed was caused by a sharp wind shift, from a 20-knot headwind near the ground to a tailwind of 35 to 40 knots at an altitude of 900 feet.

* * *

Wind shear — as these examples indicate, can do a lot to us airplane drivers. To learn the whats, wheres, hows, and what we can do about *it*, read on.

What is wind shear?

The FAA aviation weather manual defines wind shear as a change in wind speed and/or direction in a short distance, resulting in a "tearing" or "shearing" effect. Put another way, a wind shear is produced by a relatively steep gradient (rate of change) in wind velocity along a given line or direction. It can exist either in a horizontal or vertical direction and occasionally in both. Since the zone where the abrupt change occurs produces a churning motion, wind shears normally result in turbulence.

Where does it occur?

Wind shear can be found at any altitude — from the top of the jet stream down to ground level. However, low-altitude shear is the greatest hazard because aircraft taking off and landing operate closer to stall speeds and have limited altitude available for recovery. Let's examine the conditions that can produce this traffic pattern-level problem.

Strong temperature inversions: Temperature inversions can cause an extreme form of wind shear near the ground. A typical example would be the case where nighttime cooling causes a pocket of still, cool air to form in a valley. In the morning, warm air moves over the valley and the difference in velocity between the trapped calm, cold air and the moving warm air forms a wind shear. An aircraft climbing or descending through this boundary zone will encounter some turbulence and an associated change in airspeed.

Warm fronts: Wind shears are also found in the vicinity of fast moving warm fronts. Strong winds aloft, associated with the warm front, may cause a rapid change in wind direction and velocity where the warm air overrides the cold dense air near the surface.

Strong fronts involve significant temperature changes, and the larger the temperature difference between the air masses the greater the possibilities of wind shear. When temperature changes across the front are about 5 degrees C, chances of wind shear are only marginal, but as the values increase to 10 to 12 degrees C, significant wind shear near the ground is virtually assured. Aircraft passing through this frontal boundary can expect to experience a sharp wind shift resulting in an abrupt change in indicated airspeed.

Thunderstorms: Thunderstorms near an airfield are likely to create significant wind shear and gust activity at low altitude, affecting aircraft during takeoff and landing. The cold dense air which pours from under a thunderstorm can produce rapid changes in air temperature and velocity, causing severe vertical and horizontal wind shear.

How does wind shear affect an airplane?

Although an airplane's response to wind shear is dependent upon its particular aerodynamic characteristics and on the shear gradient, certain basic effects are common to all aircraft. Let's assume that our typical airplane is established and trimmed in steady, level flight with lift equal to weight and thrust equal to drag. If the airplane passes through a sharp horizontal wind shear, the resulting change in airspeed will disturb the equilibrium. For example, suppose our aircraft passes through a sharp shear which reduces the airspeed 20 percent. The new airspeed (80 percent of the original value) produces only 64 percent of the original lift and drag at the same angle of attack. This change in aerodynamic forces will cause the airplane to accelerate in the direction of the resultant unbalancing force (see figure 1). In this case the airplane will accelerate down and forward until a new equilibrium is achieved. There will also be a change in pitching moment which will cause the airplane to pitch down.

Generally, if an airplane encounters a sharp wind shear which reduces the indicated airspeed, the airplane tends to sink and loses altitude before equilibrium is achieved. Similarly, if the airplane passes through a sharp shear which increases the airspeed, the aircraft will tend to float and gain altitude before arriving at a new equilibrium.

Now let's apply our knowledge of how a shear can affect airspeed and sink rate by considering these effects during an approach. Remember, wind shear rate, magnitude, and height above the ground all have a direct bearing on an aircraft attempting to make a precision approach for landing.

To better understand the effects of these three variables, let's first look at the aircraft ground speed, in relation to the desired approach airspeed. Ground speed, which is the sum of airspeed and effective wind com-

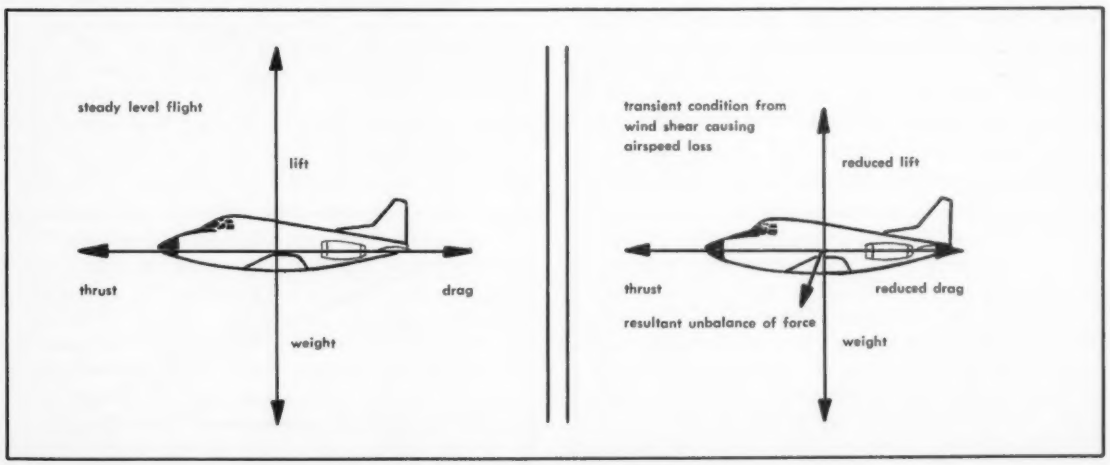


Figure 1. Aerodynamic effects of wind shear

ponent, is directly related to the rate of descent required to keep the aircraft on the glide slope. For example, if an aircraft is making an approach at an indicated airspeed of 130 knots into a 20-knot headwind, for practical purposes the ground speed will be 110 knots. If the headwind suddenly stops, the airspeed will initially drop to 110 knots but will increase as the aircraft accelerates back to the original airspeed of 130 knots. The airspeed can be regained more rapidly by lowering the nose and accepting the loss of altitude, or by prompt application of power, or by both. Such an airspeed change would be the only observed effect if the aircraft was not trying to stay on a glide slope.

Note: It might appear at first glance that wind has no effect on airspeed, since we measure the velocity of the aircraft with respect to its air mass and say the aircraft doesn't know or care what the wind is doing. Though this is a workable assumption when the wind is steady or changes at a slow rate, the situation is different when an aircraft experiences a large, abrupt change in headwind component by passing rapidly from an air mass moving at 20 knots to one which is stationary. The indicated airspeed cannot stay the same since the new air mass provides a temporarily different base of measurement. However, the aircaft immediately starts to accelerate back to its previous aerodynamically balanced condition — and airspeed. See figure 2. For this reason (and because in actual experience we rarely encounter large instantaneous differences in air mass velocities), we usually do not see extremely large changes in airspeed indications. (Incidentally, this phenomenon is the reason pilots are taught to add the gust value to their approach speed when making an approach in gusty wind conditions.)

In the case of a precision approach, however, it takes more thrust to fly a glide slope with a headwind than without one because of the lower rate of descent, and, if the headwind ceases, the aircraft (after the airspeed has stabilized) will have more thrust than is required to maintain the desired glide path.

To visualize what happens, let's assume an aircraft is making an approach into a headwind as in figure 3 and the wind shears to a no-wind condition at a rapid rate while the aircraft is well above the ground. (For this example we'll also assume thrust is to remain constant and the aircraft configuration is such that the approach speed cannot be decreased.) When the headwind decreases, the pilot must push the nose over to maintain airspeed and the aircraft will go below the glide path. The loss in altitude will be directly proportional to the increase in ground speed required at the new wind condition (an exchange of potential energy for kinetic energy).

When the energy exchange is completed and the airspeed has stabilized, the aircraft will have more thrust than is required to fly the glide slope under the no-wind condition, and it will gradually gain on the glide slope and eventually overfly it.

From figure 3 we can see that the effects of a decreasing headwind shear will be different, depending on where the shear occurs with respect to the height above the ground, the rate of shear, and the magnitude of the shear. If the shear occurs very close to the ground, it would appear that the aircraft would hit short. On the other hand, if the shear stops at a higher altitude, the aircraft would tend to overshoot the desired touchdown point.

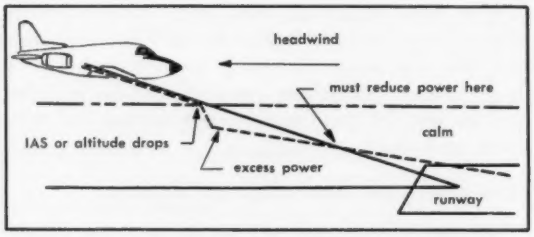


Figure 3. Approach profile with decreasing headwind

To illustrate the approach flight profile with a decreasing tailwind (figure 4), let's again assume the constant thrust condition and a tailwind rapidly shearing to a calm condition. The aircraft will initially overfly the glide slope when the shear is encountered, but then (after establishing airspeed) will have insufficient thrust

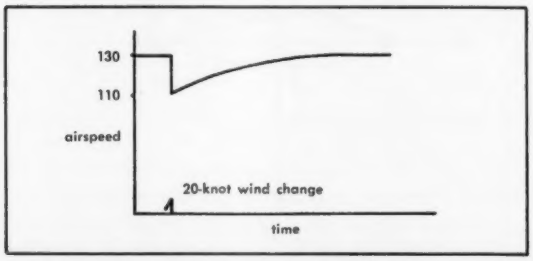


Figure 2. Airspeed change with sudden headwind loss

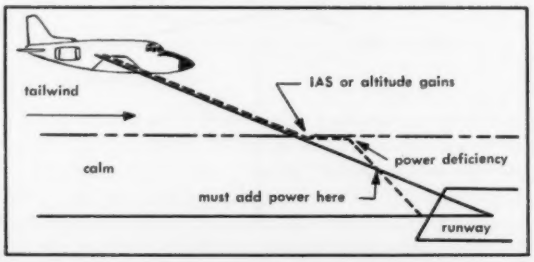


Figure 4. Approach profile with decreasing tailwind

to maintain the same glide slope in the no-wind condition — so it will drop below the approach path and end as an undershoot.

The constant thrust examples are used to illustrate the most dramatic effects of wind shear. No pilot would be content with a constant thrust setting when he is not maintaining his desired position on the glide path. By applying the required thrust at the appropriate time and adjusting power while passing through the shear, and then selecting the correct power to establish a new equilibrium once through the shear zone, the effects as depicted in figures 3 and 4 can be controlled. The pilot can identify this wind shear and anticipate thrust requirements by paying particular attention to airspeed changes and to the descent rate required to maintain the glide slope.

What can be done to compensate for wind shear?

Captain W. W. Melvin of Delta Airlines recommends the following rules when in known or suspected shear areas:

1. If a *strong headwind* exists at altitude, with a calm wind near the ground, be prepared for a large thrust addition if the shear is rapid — a few knots of extra airspeed will help if there is doubt about the amount of excess thrust available to counteract a rapidly decreasing headwind shear. However, if the shear has already commenced and the thrust has been advanced to correct for it, anticipate the need for thrust reductions. If the shear begins just above the ground, you may be deficient in thrust, but if the shear begins at a higher altitude and ends just above the ground, there will be a tendency to have an excess of thrust.

2. If a *strong tailwind* exists at altitude with a calm wind near the ground, be aware of the possible need for a large thrust reduction when the shear is encountered. But if the correction has already been made, expect the need for increases in thrust thereafter and a possible large increase when out of the shear.

Be especially cautious of a rapidly decreasing tailwind shear that may commence a few hundred feet above the ground and cease fifty or more feet above the ground. Upon encountering this shear you will over-ride the glide slope and be high in airspeed. Of course, you will correct this by reducing thrust. But when the shear ceases there will be a need for a large thrust addition.

Some fan engines respond very slowly to large thrust demands if the engine is at idle. If the aircraft being flown has these engine characteristics, the last few hundred feet of all approaches should be flown at a maximum permissible thrust setting, and if an acceptable sink rate and airspeed cannot be maintained, the approach should be abandoned.

3. Be especially cautious of wind shear during engine-out landings. A normal full-flap, high-drag configuration may leave you without enough reserve power to counteract the effects of a rapid shear.

4. Be cautious of a large increase in airspeed just before touchdown. Although the stopping distance from touchdown may not be any greater than for a no-wind condition, if the aircraft passes over the touchdown point at the higher than normal airspeed (with groundspeed the same as for no-wind), the increased airspeed in most cases will result in a long landing. You will tend to float while bleeding off the excess airspeed and thus leave a bunch of runway behind you. If you are using a short or wet runway, better go around and come back again. This time you'll know the wind characteristics and can avoid a fast, long touchdown.

5. If you are flying an autopilot-coupled approach, be aware of the manner in which the coupler flies the aircraft. Thrust requirements when transitioning from a headwind to a calm wind condition may be amplified by the autopilot reactions. As the airspeed decreases the airflow over the wing is reduced producing less lift, and the aircraft will accelerate in descent accompanied by a nose-down pitch moment. When the aircraft drops below the glide path, the autopilot commands nose-up trim to shallow the rate of descent and the airspeed decreases further. By this time a large thrust requirement is needed and power application may be too late. Slow engine response will complicate the situation.

Being thrust-deficient close to the ground while on a coupled approach is very hazardous. However, if you carefully monitor the glide slope raw data indicator, vertical velocity indicator, and airspeed indicator, you'll be able to apply excess thrust the instant you detect a drop in airspeed combined with an increased descent rate. In other words, you will stay ahead of the power requirement.

How does wind shear affect takeoff?

The aerodynamic forces resulting from passing through a wind shear are the same during takeoff and climb as they are on approach. A strong decreasing headwind shear encountered shortly after takeoff is particularly hazardous.

Let's look at what occurs when an aircraft takes off with a 10-knot headwind and then passes through a sharp wind shear and encounters a 40-knot tailwind (figure 5). Assuming the aircraft attains an indicated airspeed of 150 knots on takeoff, the ground speed will initially be 140 knots. Then when the aircraft passes through the abrupt shear, such as might be associated with a frontal zone or thunderstorm, the airspeed will

drop toward 100 knots with the 40-knot tailwind. As the airspeed slows and the aircraft starts sinking, the angle of attack will increase and thus keep the aircraft in or near a stall.

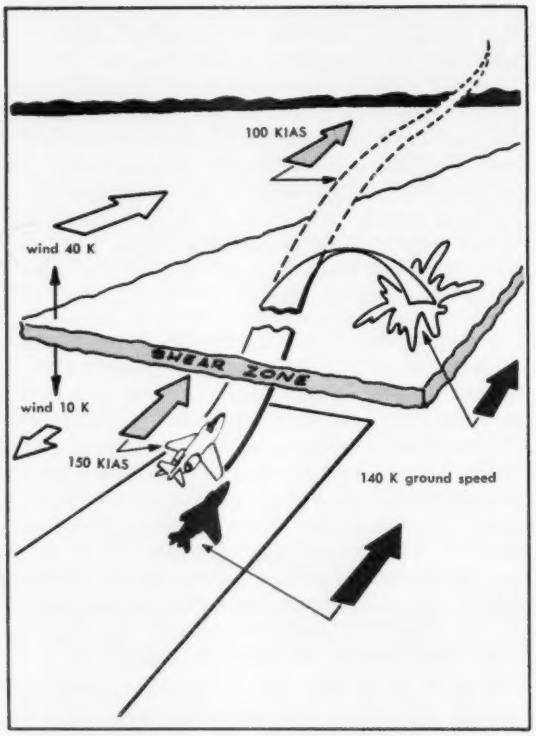


Figure 5. Climbout with strong tailwind shear

Obviously, you shouldn't take off when there is an extreme wind shear or gusty, shifting surface wind, especially if your climb speed is critical. Even small changes in headwind values can cause the aircraft to fall below its computed climb profile and fail to clear a critical obstacle.

If takeoff must be made, liftoff should be delayed until the airspeed stall margin is above the gust factor. Then accelerate to the turbulence penetration airspeed before climbing into the shear zone.

Conclusion

It is a well known fact in aviation that landing, approach, and takeoff accidents make up a major segment of aircraft mishaps, and that they are caused by many different conditions. Low-altitude wind shear is one of these conditions — and it is a serious problem, one that cannot be ignored. It is also a factor from which no aircraft is immune.

Wind shear effects during operations near the ground, whether on landing or takeoff, are too often overlooked or are mistaken for substandard flight crew performance.

You should be aware that strong temperature inversions, fast moving and strong warm fronts, and thunderstorm activity can produce wind shears. You also should know that while on an approach, you can detect wind shear by a sudden departure from the glide path accompanied by a rapid change in airspeed in the same direction. Remember, the effects of wind shear are dependent on the rate of the shear, the magnitude of the shear, and the geometric relationship of the shear to the ground. When a shear condition is known to exist or is expected, exercise particular care in airspeed control throughout the approach. Also, help the next man — if you detect a significant wind condition, pass the info on to approach control so that other traffic can be advised.

With thorough flight planning, good instrument flying, and an understanding of the effects of wind shear, all tempered with sound judgment, you should be able to avoid short touchdowns and overshoot landings. Have a successful flight.

REFERENCES

"Aerodynamics for Naval Aviators" by H. H. Hurt, Jr. University of Southern California, Los Angeles.

"Atmospheric Instability," FAA Aviation News, May 1972. Federal Aviation Administration, Washington, D. C.

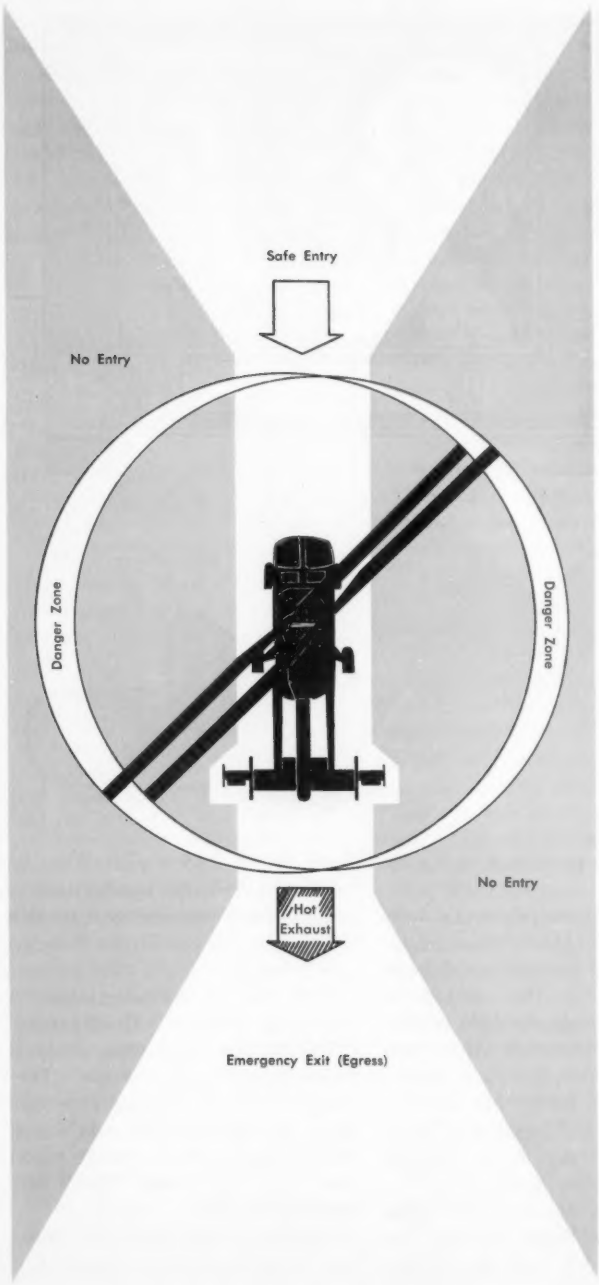
"Effects of Wind Shear on Approach," by W. W. Melvin, Captain, Delta Air Lines, Inc. Pilots' Safety Bulletin, April/June 1970. Flight Safety Foundation, Inc. Arlington, Virginia.

"Low-Altitude Wind Shear," Flight Safety Facts and Analysis, August 1972. Flight Safety Foundation, Inc., Arlington, Virginia.

"Low Level Wind Shear," Interceptor, June 1971. Aerospace Defense Command, Ent AFB, Colorado.

"Pilot Judgment or Wind Shear," by Major Thurman N. Palmer (Ret). The MAC Flyer, Jan. 1966, Scott AFB, Illinois.

Want to Keep Your Head?



Not long ago one of our Rescue HH-43 helicopters launched in response to an SOS from a Navy pilot. The Navy jock bailed out some 65 miles away in an area heavily covered with brush and trees. A carefully selected clear area near the downed pilot was identified for landing. To afford the best obstruction clearance and pilot visual reference, the helicopter pilot elected to land so that a tree about 15 feet tall was approximately 15 feet directly in front of the chopper. As the landing was initiated, the downed pilot started running toward the helicopter, approaching it from the front. Then, as the helicopter touched down, the rescuee suddenly changed his entry direction and moved to approach the right side of the helicopter, directly beneath the low-swinging rotor blades.

In an effort to avoid decapitating the downed crewman, the helicopter was immediately brought to a hover and turned 45 degrees to the right for added clearance. In doing so, the left-hand rotor blades hit the tree branches. The helicopter was landed and shut down without further incident, but inspection showed numerous cuts and holes in the outward 30 inches of both left hand blades. The damage was greater than that authorized for field level repair, so the set of rotor blades had to be replaced.

For HH-43 crewmembers, maintenance troops, and others who have seen the rotor blades droop to a few feet above the ground, it is a traumatic experience to watch someone approach the helicopter from the side while the rotors are turning. However, we can't expect a pilot who has just survived an ejection or the little old lady whose house is disappearing under flood water to read and heed the "WARNING APPROACH FROM FRONT" painted on the outside of the pylon fairings.

So, we must educate and watch carefully those not familiar with the mercy craft. We'll pass the word on to our sister services and encourage them to disseminate the safe approach path and danger zones of this helicopter. You must set up an indoctrination for your base pilots and flight-line personnel. This will help those who may find themselves approaching a Huskie for the first time. And for all you chopper pilots, give yourself plenty of room and don't forget the public address system; a voice warning, combined with visual hand signals by your crew, may be necessary.

C.R. TERROR

A bit short on fuel and a whole bunch long on weather, the Gross Gripper finds that the TV weather woman won't hack it for flight planning.

C. R. PUSHED HIS CHAIR back from his antique round oak claw-foot table and dabbed at his thin waxed mustache with a linen napkin. A familiar gleam came to his eye as he thought ahead to Hill . . . and Peggy. The Potentate of Potables had wangled his way into a staff assistance visit and then was able to con the senior T-39 scheduling officer, Durward Hee, into giving him a bird to fly out there. The plan called for the Gross Gripper to be AC on the westbound leg, then get off at Hill and let Maj Ding, attached FEAC from HQ MAC who was out there on a visit, bring the bird back.

Show time was about an hour away, so the Master Manipulator quickly packed his hand-tooled leather hang-up bag, then flicked on the TV and caught the 1800 weather with Martha Metwatch before leaving for Base Ops.

* * *

"Hello, Hubie," called C. R. as he pranced into the flight planning room. "How's the weather look?"

"Aw, c'mon, Major Terror, either Huey or Capt Bender is okay, but not Hubie," shot back the ex-rotor head turned T-39 copilot. Then he continued, "Sir, the weather shop is closed. There's a sign in there that says we have to call Blytheville to get our briefing."

"Ah, yes, the AWS drawdown is beginning to show," C. R. mused. "Well, let's go in and take a look at those funny weather maps." They walked into the weather shop and were greeted by silence and a wall full of weather charts. At the top of the board was marked "Pilot's Self-Briefing Display."

"Well," exclaimed C. R., "it sez we can brief ourselves. I'll start here

and you begin at that end." He immediately busied himself looking at the charts, wishing he could remember more about how to read them. Squinting up at the mid-level winds chart, he eyeballed some en route winds for flight planning purposes, told Huey to find a forecast for Hill, and then rambled out of the door to fill out a Form 70 and a 175.

The base ops dispatcher, dividing his attention between the paperwork and a TV hockey game, initialed their flight plan and pushed a trip kit across the counter. Bender grabbed it and his flight bag and followed C. R. out to their aircraft.

"Come on m'boy, time's awastin'," C. R. called to his copilot as he slipped and slid across the icy ramp. As they arrived at the bird, Capt Bender panted, "Sir, I never did find the Hill weather, but Denver was good. From what I could tell Hill will be good, too. Don't you think we should go back in and get a 175-1 briefing from Blytheville, though?"

"Naw," scoffed the Pudgy Pilot, "I listened to Martha Metwatch before I showed for the flight and she said the weather was going to be pretty good west of the Mississippi. Anyway, from what I've read and heard, us crews are going to have more of the responsibility for figuring out the weather. And I figure a live dame on TV is gonna beat an old chart!"

* * *

As they approached Denver, Huey Bender, junior Ace of Aerospace, asked if he should check the Hill weather with Buckley Metro.

"Relax, man," shot back the Rotund One, "we're doing just fine. Fuel is pretty good and besides, I can't spare the UHF. As you can see Denver is as clear as a bell so Hill should be the same. But, if it will make you feel better, give them a call."

The badgered copilot gave up and resumed staring out the window. Then, as they approached Meeker, Denver Center turned them over to Salt Lake Center. As Huey flipped the selector, he noted a look of despair on C. R. Somehow they'd lost ten minutes on the last leg, and the fuel picture had gone from *iffy* to *oh oh*.

On initial contact the Salt Lake controller asked, "Chub 31, Hill is reporting 100 and a quarter with blowing snow. What are your intentions?"

Now C. R.'s face ashened and his mouth opened, but no sound came out. Capt Bender looked at his leader and waited for an answer. The silence was broken by the controller saying, "Chub 31, if you read me squawk ident."

The World's Greatest Self-Briefer finally punched the mike button and answered, "Roger, Salt Lake, we read you." He paused, then said, "Someone really blew the forecast didn't they?"

"No sir," returned the controller, "Hill has been carrying worse than this for the past 12 hours. I say again, what are your intentions?"

"We'll go into Salt Lake; what are they reading now?" C. R. asked.

"About the same," answered the controller, "and Mountain Home is closed due to 20-foot drifts on the runway. Chub 31, stand by . . . Sir, I just received the latest observation at Hill. They're calling it 200 and a half now with an RCR 06 ice on runway." The Gross One tightened his seat belt and asked for a GCA at Hill. He didn't have the nerve to tell the controller that they didn't have fuel to make it back to Denver. It was do or die, and C. R. set about to *do*.

The Master Manipulator pulled part of his chest up off his seat belt, regained some of his dwindling composure, and started his descent.

"Major Terror," Huey spoke up, "I hate to tell you this . . ."

C. R. cut in and said, "Then don't."

". . . but we are running awful short on fuel." As he spoke, a fuel low level light winked yellowly at them.

"I told you not to tell me, dummy! Quick, figure out how much we will need and how much we have remaining," the Pontificator gulped.

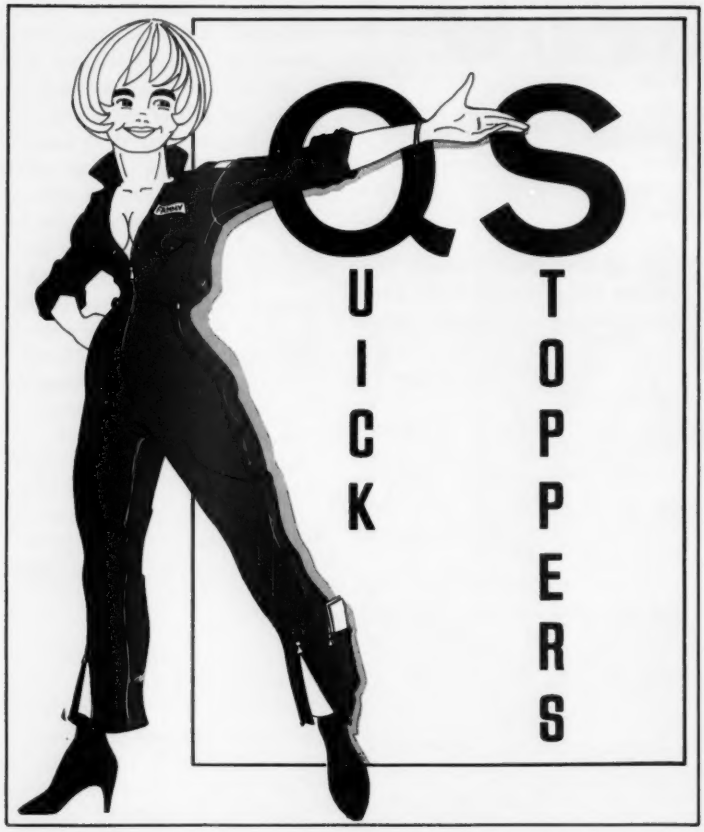
A long, long minute later, Huey broke the still of the night. "Sir, I think we'll be okay if we make some fuel in the descent and the scavenger pumps work. I figure we will have a total of 275 pounds when we land."

A cold sweat began to form on the Bald Baron's forehead. He wished now that he had gotten the briefing that his copilot wanted, instead of relying on old Martha. Being short on fuel really bugged him — the winds must really have changed a lot or . . . Oh no, he shuddered — could he have used the wrong wind chart? His thoughts were pulled back to the approach as Hill Rapcon began bringing him down through the blinding snow.

* * *

C. R. was smiling faintly as he stepped from the aircraft. Then Major Ding greeted him and the face of the Big Broadcaster of Bull went from happy to sad. "Terror," Ding began, "why is it that you breed trouble? Didn't you get a weather briefing before you left Scott? The weather has been lousy here for the last 12 hours but yet you still came. I had already gone back to the BOQ to spend the night when they called me with your inbound. And the RCR is *still* below minimums. Come on and get your bags — let's get out of the cold. I've got to call the Wing Commander and report this little caper."

C. R. looked over his shoulder at his copilot and silently wished that Sam had made the trip with him. Now *there* was a copilot who knew how to keep him out of trouble. Then he quickly dismissed the whole event and as he boarded the crew bus, visions of Peggy and bear skin rugs filled his head.



Who? Only You

Four airplanes. Four problems. And one root cause.

* An HH-43 lost the pilot's sliding door in flight.

* A C-5 lost three engine blowout doors.

* A C-141 oil filler cap was not properly secured and the engine lost several quarts of oil past the loose cap.

* An HC-130 lost a panel assembly that had 18 of the 56 cam locks unfastened.

The gist of this is that incidents caused by human error are on the increase. The solution is *you*. Only you can make a thorough preflight, perform superb maintenance, and provide close and proper supervision.

Only *you* can prevent these incidents.

Makeshift Emergency

The following incident may seem like a freak occurrence, but the recap contains an important message.

A helicopter rescue crew preflighted their alert bird and found only three of the four required Very pistols. Since their aircraft required a pistol modified with a clamp to attach to the gun mount, finding a replacement pistol proved temporarily impossible. To avoid a delay, the crew took an unmodified Very pistol and placed it in an airframe channel near number one gun mount. There were no problems until final approach, when the loose Very pistol vibrated out of the channel, fell to the floor, and discharged. Immediately, dense acrid smoke filled the cockpit and cabin area. Fortunately, the crew completed a safe landing, and the burning flare projectile stuck to the cabin floor and was quickly extinguished.

Flight crews are aggressive and enterprising by nature, and in trying to complete the mission we are tempted to take short cuts. Too often, though, these short cuts come back to bite us. If we've got time to investigate a mishap, repair the machine, and *then* do the job right — we've got the time to do things right the first time.

Stupid mishaps don't always happen to the other guy . . .

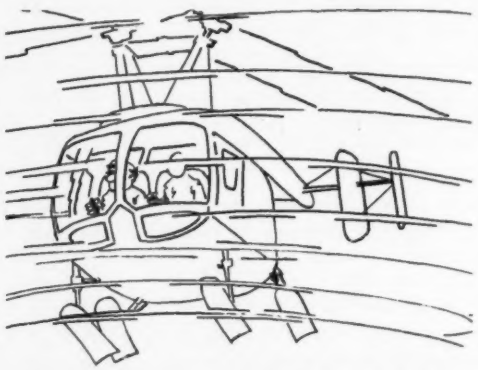
How Does Your Lifesaver Fit?

When you strap in, do you make sure your shoulder harness and lap belt are secure and properly adjusted? We all know the reasons for wearing our restraining devices, but do we really stop and adjust them when the checklist item, "Seat Belt and Shoulder Harness — Fastened," is read?

Accident investigation boards still report that aircrew members suffer severe — but preventable — injuries because seat belts and shoulder harnesses are loosely worn. We know of no crew that straps in knowing it will crash land. But you *might*, so to minimize injury, and to receive the protection that the harnesses and belts were designed to provide, you've got to properly adjust and secure them.

It matters not whether you're a chopper jock, a fixed wing driver, a crewmember, or a passenger, or whether you're on a short hop or long flight. Time and altitude won't wait for you to tighten the straps when an emergency occurs.

C. R. in Fact



Everyone knows that C. R. Terror is fictitious, but from time to time some troops try to duplicate the accidents that C. R. has been involved in. The most recent case paralleled the December '72 Terror caper where C. R. went IFR just prior to touchdown and dinged a gear. Here's the story of some overseas troops who relived C. R.'s terror.

An HH-43 entered an unreported, very dense fog bank shortly after a night takeoff. The pilot was able to maintain visual contact with the blue taxiway lights and elected to land on the taxiway. As the pilot eased his way down, vehicle headlights appeared directly in front of the chopper. A fancy evasion tactic, while 10 to 15 feet in the air, led to loss of visual reference and an unintentional impack with the ground. Damage: a destroyed right main landing gear.

C. R. is really alive and kicking.

Do You Have the Numbers?

When a controller asks, "Do you have the numbers?" or when someone reports that they "have the numbers," what do they mean? According to FAA Handbook 7110.8B, if you are preparing to taxi and you say "I have the numbers," the controller knows that you know the active runway, the taxi route, the wind direction and velocity, and the altimeter setting. Specific taxi instructions will be provided if you ask for them.

If you are arriving at an airfield, "having the numbers" means that you know the direction of the traffic pattern, the pattern altitude, the runway in use, the surface winds, and the altimeter setting. The controller will provide you with instruction on entering traffic and advise you of the traffic situation.

How do you get the numbers? Listen to the Automatic Terminal Information Service (ATIS) at airports which provide such service. As the FLIP Supplement points out, the proper terminology is to report "Information Echo Received." In the civil world, having the numbers means the same.

No matter which technique you use, when the system operates properly, "having the numbers" or acknowledging the latest ATIS broadcast will reduce chatter on congested frequencies.

NOTE: In this system, a lot of the responsibility rests on you to get the right numbers. If you have any doubt, *ask*. Don't assume your way into an accident.

— 4500 ABWg

Writing Contest Rules

Who can enter? You can. All aircrew members, maintenance and support people are vital to flying safety and are urged to enter. While only military personnel and DAF civilians assigned to MAC or MAC reserve forces are eligible for awards, anyone can submit an entry. All "non-award eligibles" will receive appropriate special recognition. No more than three entries per individual — please!

The first three place winners will receive an engraved walnut desk set. Honorable Mention winners will receive a handsome pen and pencil set.

Your entry must be original, unpublished, and have a valid flying safety message for MAC. Please keep each entry between 1,000 and 3,000 words. That's about 6-14 pages, double spaced.

Your entry should be typed in two copies, double spaced, with no identification except the title. Then attach a cover sheet with the story title, your name, address (military address if you have one) and a brief biographical sketch. Mail your entry to: The MAC Flying Safety Writing Contest, MAC/IGYE, Scott AFB, Illinois, 62225. Entries must be postmarked no later than 31 March 1973, and must be received at MAC/IGYE on or before 7 April 1973.

Dark Night Takeoff Bashes

For more than 25 years, the term "dark night takeoff accident" has been associated with mishaps following takeoff over "textureless" terrain in conditions of extreme darkness but good visibility. Under these conditions, you may be induced to divert your attention from the flight instruments to the outside. Typically, after a relatively short climbout (and with the aircraft functioning normally) you enter a shallow dive which continues until you hit the unseen land or water.

The cause of the problem is an illusion which, briefly summarized, works like this: In the absence of visual pitch information, a pilot under substantial forward linear acceleration will perceive an apparent change in body position as though he were being tilted backwards. An illusion of excessive pitch-up may occur and, obviously, if he were to correct for this illusion, he would dive the aircraft. The magnitude of the illusion increases with reduced external visual reference; during daylight operations the illusion would be minimal, but during night and weather operations, it would be maximal. The onset of the illusion is 30 to 60 seconds after the stimulus; the illusion remains during constant stimulation and ends immediately on cessation of the stimulus; therefore, reorientation should occur immediately on cessation of the flight maneuver.

The dark night takeoff illusion has caused many accidents, and "dark night takeoff accidents" continue to occur both in military and civil aviation. Perhaps the accident record is some indication of inadequate understanding of the phenomenon at the training, operational, and accident investigation levels.

It is difficult to demonstrate this illusion in trainers or simulators since the essential element of the "dark night takeoff accident" is pilot inattention to flight instruments in conditions which tempt the pilot to "fly visual." Whether a well-designed attitude instrument will suppress this illusion to the same magnitude as a pilot well indoctrinated in flight instruments is open to conjecture. If there is a general lesson to be learned from study of "dark night takeoff accidents" it is this: Long pilot experience is no certain protection. Instead, the answer is a pilot who has an awareness of conditions conducive to disorientation and is well disciplined in instrument flight.

Maj Joseph G. Devincentis
Ch, Physiological Tng, 4500 ABWg

after deadline . . . .

SECOND CENTURY STREAK -- For the second time in six months, the 438th MAWg logged 100 consecutive on-time departures for originating missions. Not only that, the record was built at an eight-a-day clip over the year-end holidays. Congrats.

FOR COMMANDERS AND BASE OPS TYPES -- ALSAFECOM 13/72 was a broadside appeal to get ready for C-5 operations at your airfield, whether you expect a visit from Great Fred or not. We've had some queries about references and appeals for help, so here's a list of material published in TMF:

Feb 66 The C-5
Jul 67 Q & A About the C-5
Feb 68 A Mission in the C-5
Jul 68 Flight Testing the Galaxy
Oct 68 Tactical Deployment and Resupply with the C-5
Feb 69 The C-5 Inertial Doppler Navigation System
Oct 69 MADAR
Feb 70 C-5 Landing Gear
Mar 70 Beryllium Binders
Apr 70 The C-5 ... Just Another Airplane?
Sep 70 C-5 Exhaust Velocity/Ground Operations
Jan 71 The Galaxy
Feb 71 C-5 Hazard Analysis
Apr 71 C-5 Navigational Systems
Aug 71 Galaxy Glidepaths
Sep 71 28 Tires, Four Fires & Me

For those with back issues of AIRSCOOP, check the September 1971 copy for a close look at one base's response to a surprise C-5 visit. Extra copies may be available from USAFE/IGYE, APO NY 09633.

Lockheed-Georgia also offers two publications, "C-5 Airplane Characteristics for Airport Planning" (ER 10108) and "C-5 Operational Planning" (MER 400B). Write to Customer Facility Engineering, Lockheed-Georgia Co., Dept 49-01, Zone 255, 86 South Cobb Drive, Marietta, Ga. 30060.

"IT CAN'T HAPPEN IN MAC" DEPARTMENT -- A recip-powered HH-34 slipped into one of our bases with a request for refueling. The word was passed that the aircraft was an HH-43, so the gas-pumpers sent out a JP-4 truck. The crew was in ops filing while refueling was done, and the error was not discovered until their bird quit in the midst of a five-foot hover. After the safe but scary recovery, a prompt investigation turned up these gems:

* Though the crew had rogered a verification of their aircraft type as an HH-43, when they caught the error they called in a correction and asked for avgas.

* The JP-4 truck driver received an avgas aircraft identiplate but "assumed the transient alert servicing crew knew what they were doing."

* Transient alert "assumed the right fuel type had been dispatched and filled the aircraft" with JP-4.

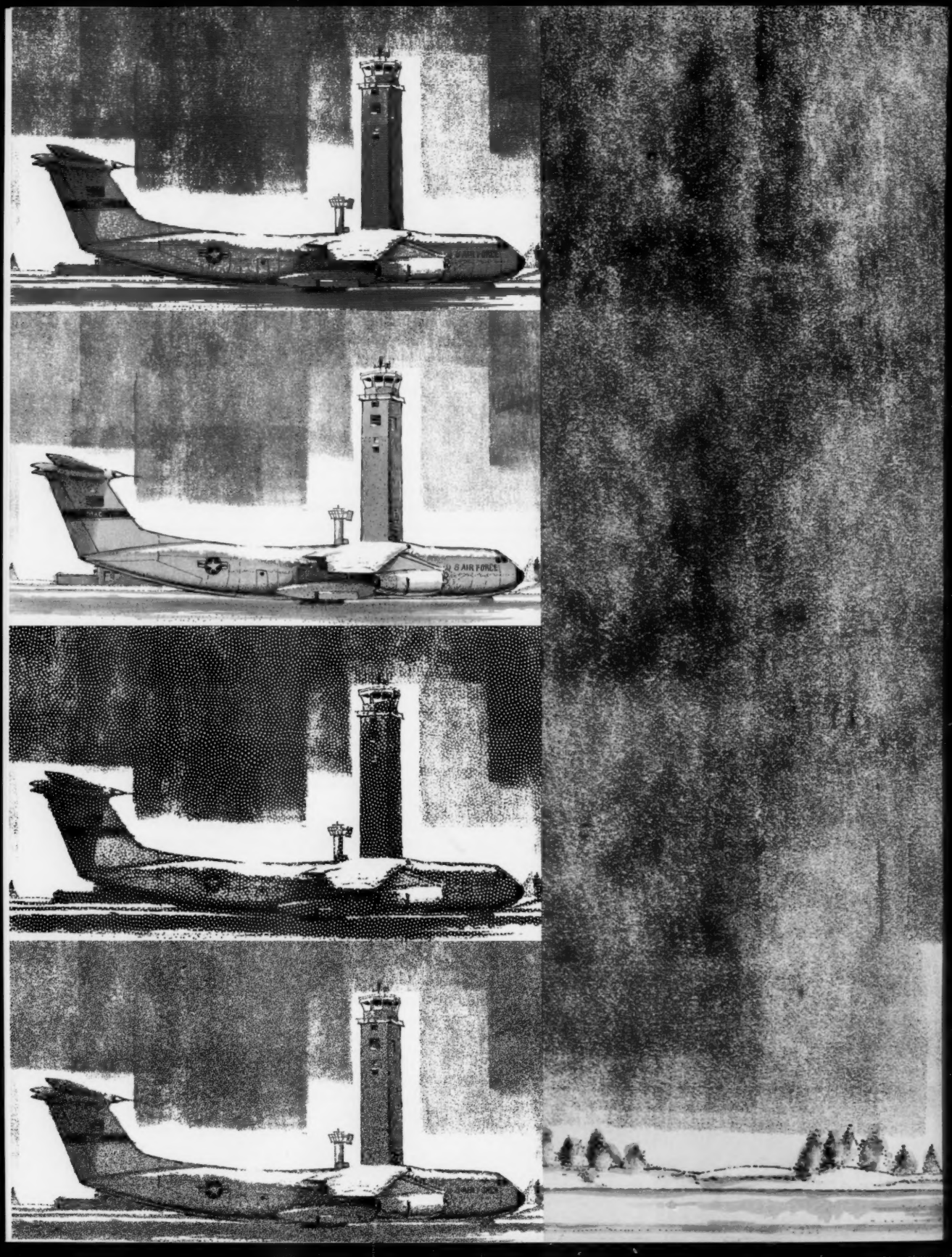
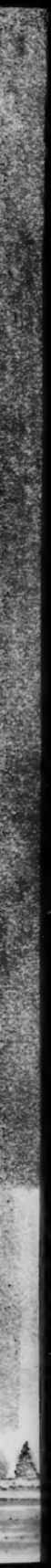
* The Form 781H showed 219 gallons of "115/145 avgas" were put in.

* The crewmembers assumed the earlier HH-34/HH-43 confusion had been resolved, and that transient alert would only put avgas in a recip machine.

Though there was no obvious damage to the bird, the crew had to wait for a fuel system purge and precautionary engine change.

We predict that this may happen again.

COMING ATTRACTIONS -- THE MAC FLYER for March will bring you a C-5 feature especially for maintenance folks, a recap of helicopter low-flying mishaps, and a look at mid-air collision hazards.

EDITOR'S CHOICE -- The Editors took a close look at the dozen or so volunteer manuscripts which we published in 1972, and chose the one which we liked best. The winner: "Birthright of a Breed" which appeared in May. Our congratulations -- and a pen set -- go to Major Dennis W. Stiles, 67 ARRSq, RAF Woodbridge.

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